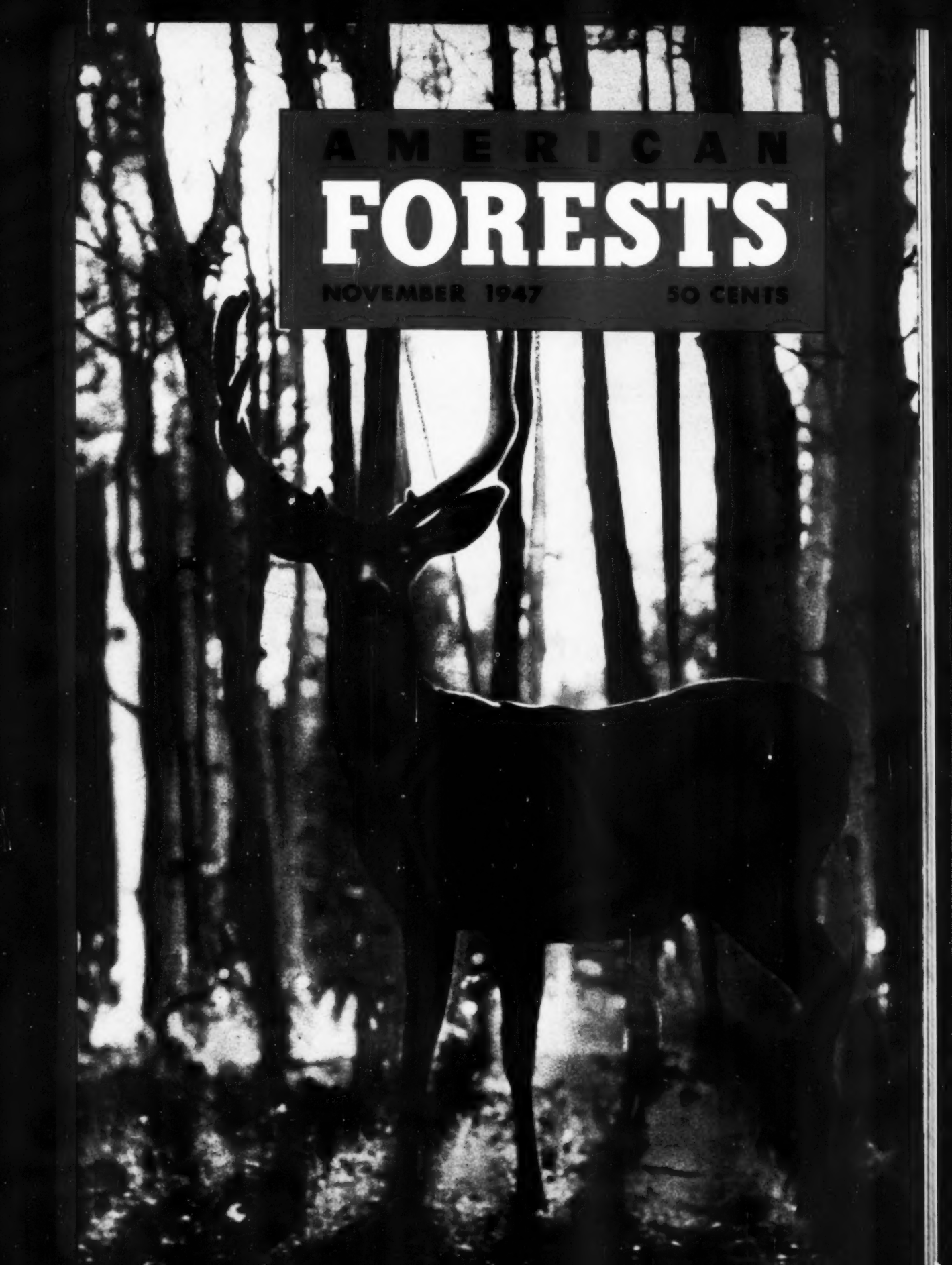
AMERICAN
FORESTS
NOVEMBER 1947
50 CENTS

"Weavers of Speech"

To you, who each day
Take on anew your tasks
Along the lines that speech will go
Through city streets or far out
Upon some mountainside
Where you have blazed a trail
And kept it clear;
To you there comes from all who use the wires
A tribute for a job well done.

For these are not just still and idle strands
That stretch across a country vast and wide
But bearers
Of life's friendly words
And messages of high import
To people everywhere.

Not spectacular, your usual day,
Not in the headlines
Except they be of fire, or storm, or flood.
Then a grateful nation
Knows the full measure of your skill and worth.
And the fine spirit of service
Which puts truth and purpose
In this honored creed —
"The message must get through."

BELL TELEPHONE SYSTEM

AMERICAN FORESTS

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THE COVER
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Photograph by C. A. Musgrave

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The Purpose

The American Forestry Association is a national organization—educational in character—for the advancement of the intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is (1) to bring about adequate protection and perpetuation of these resources by creating an enlightened public appreciation of the need of conserving them through wise use for the present and future welfare and enjoyment of all the people; (2) to make available to Americans in all walks of life a wider knowledge and appreciation of their forest resources and the part they can play in the social and industrial life of our nation.

The History MORE THAN half a century ago American men and women of vision, stirred by the rapid destruction of forests and forest life in the United States, began to raise their voices in behalf of conservation. Foreseeing the danger of allowing America's rich forests and vast natural wealth to be thoughtlessly wasted, these public-spirited individuals protested the needless destruction that was taking place. Out of their efforts came a collective force—The American Forestry Association, first organized in 1875 and made a national influence in 1882.

The Record THUS The American Forestry Association has a long record of efficient public service. The establishment of the United States Forest Service and the creation of the nationwide system of state and national forests and parks were due in no small part to the Association's efforts. Its educational work, extending over more than seventy years, has stimulated public action and built public support for protection against forest fires and floods; for prevention and control of soil erosion; for the development of conservation policies in forest management for continuous production through wise use; for the control of forest insects and diseases and the preservation of fish and wildlife.

The Support FROM AN ORGANIZATION of a few hundred members three decades ago, the Association has attained a substantial membership of many thousand men and women, living in every state in the Union and in foreign countries throughout the world. The funds of the Association are administered by a Board of Directors composed of individuals of national standing—men and women who give their services free, who have a practical understanding of the nation's present-day conservation needs, and are equipped through experience, ability, enthusiasm and training to advance the Association's program.

The Program BECAUSE OF its independent, non-political character, the work of The American Forestry Association is vitally necessary in the field of public service. It provides an unprejudiced influence for the development of sound conservation measures. It helps coordinate public, state and federal policies. It cooperates closely with federal, state and private agencies in conservation work. At the same time it initiates, sponsors and carries on needed projects in conservation in addition to its regular broad continuous program of education.

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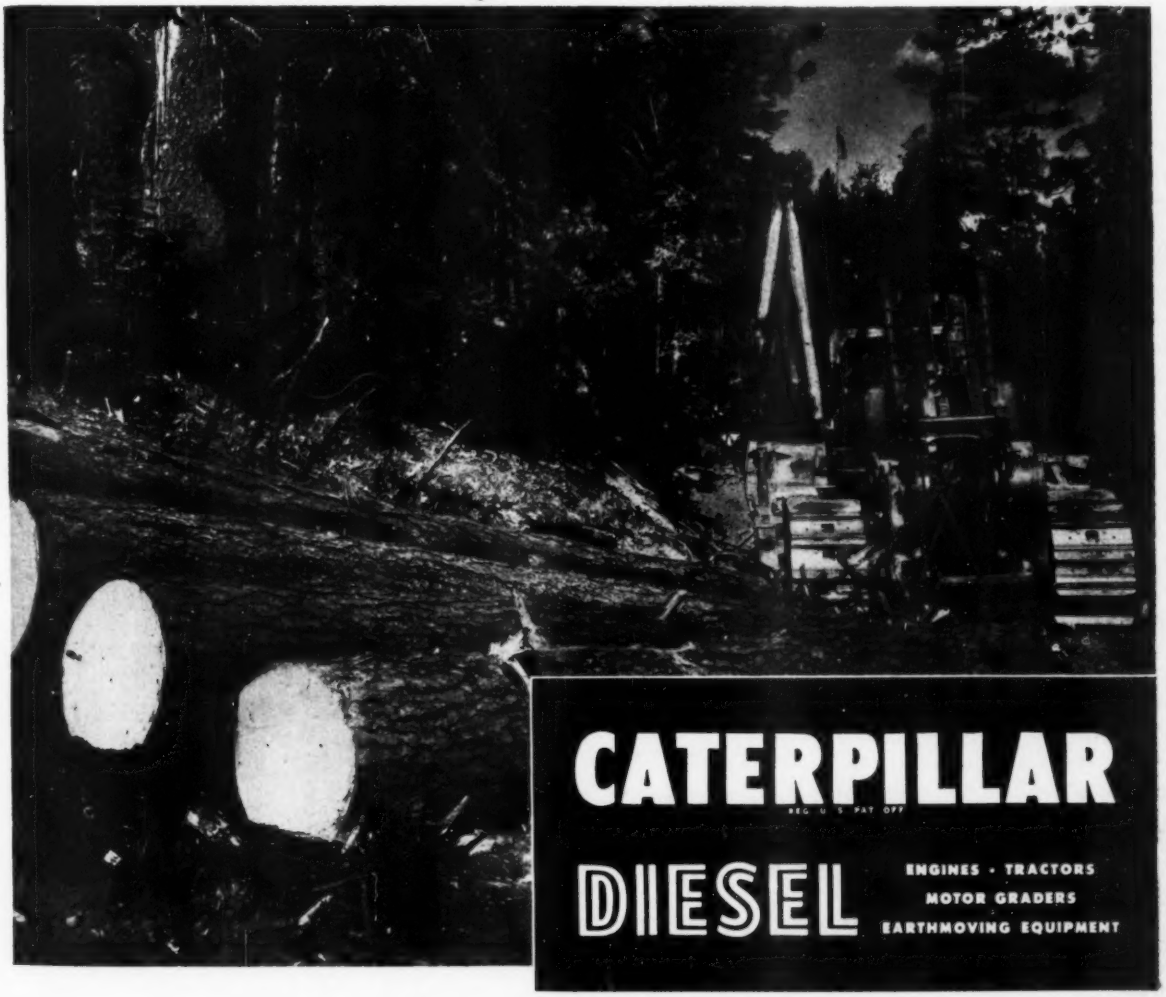

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Want to Help the Finns?

SIR: Finland has an excellent and keenly science-minded technical institute, Teknillinen Korkeakoulu. During the war its library was bombed and totally destroyed.

On my recent trip to Finland for the American Friends Service Committee, I discussed the situation with Dr. Martti Levon, director of the institute. He said he would welcome gifts of scientific and technical books and periodicals from America to take the place of those destroyed. In the remarkable efforts for recovery that the Finns are making, the lack of technical library facilities is a very serious handicap. It would be a practical act of friendship to a nation that holds America in high regard if Americans should contribute good technical books and periodicals to this library.

Any such gifts should be marked for the Institute of Technology, Helsinki, and sent to the Legation of Finland, 2144 Wyoming Avenue, N. E., Washington, D. C.—*Arthur E. Morgan*, member, American Friends Service Committee, Yellow Springs, Ohio.

Support for a Shade Tree Service

SIR: I suspect that the article "Do We Need a Shade Tree Service?" by Ernst J. Schreiner (August issue), has aroused more than passing interest.

It is my sincere wish that Dr. Schreiner be allowed to explore this important subject further.

As Maryland's extension forester, I receive many letters from individuals who are concerned with the welfare of their shade trees. Unfortunately, I have neither the time nor the training to be of much assistance to these people. I believe that many states should have an extension shade tree specialist. I believe that such a specialist would create more and better tree work for and by tree surgeons and other practitioners in this field.

I would like to add that there is a real need for some serious research work on shade tree problems.—*Harry William Dengler*, College Park, Md.

Plea for Sportsmanship

SIR: One good reason why landowners object to hunting on their lands is that hunters are likely to shoot anything that is alive. If they fail to kill a buck, they will use their shells on hawks, owls, road runners, bobcats, coons, or even does or fawns.

In our experience of managing a few thousand acres, even responsible men who have permission to hunt will think nothing of killing a big owl on their way home in the evening. That is part of the day's fun, and maybe a consolation for not having got a buck. Some actually think they are doing the landowner a favor, even though these birds and animals live largely off ground squirrels, gophers and mice.

If we could count on hunters to shoot at legal bucks and nothing else, many of us would not object to hunting on the ranches during the open season. In many places there are too many deer.

But this idea of shooting anything that is alive not only increases the number of rodents, but it robs the country of much of its interest. Wild birds and animals add greatly to the interest of any country. — *Paul Squibb*, Los Olivos, California.

More Than Christmas Trees

SIR: There is at least one county in New York State whose forest, planted with trees from the state nurseries, is not in the sad condition described by Henry S. Kernan ("Forest Riddle of New York," July issue). That county is Onondaga, in the central part of the state.

The forest, named appropriately Highland, contains 2,500 acres, about equally divided between native stands and plantation. It is operated by the Onondaga County Park and Regional Planning Board. Many products besides Christmas trees have been taken from it and it is operating under a preliminary management plan drawn up by the writer three years ago.

This plan, after being edited by the executive secretary of the department, Charles F. Ames, was published in mimeograph form and distributed to all county officials and other interested parties, including key members of the State Conservation Department. The full management plan awaits surveys now under way.

Meanwhile, however, products are being taken in quantities small enough not to exceed the probable growth rate.

From the conifers, the oldest stands of which were planted in 1929, we have sold—yes—Christmas trees, several thousand dollars worth. At first this was done as a thinning operation, but it soon became apparent that the best Christmas trees are also the dominants, so certain stands are to be set aside for rotation as Christmas tree crops and experiments to determine the most satisfactory species.

These operations have shown a small profit in spite of a policy of high quality for low prices so as to get into the market. There is no question that the business is economically sound in this area and, more realistically handled in the future, could produce a good profit.

Poles and posts, mainly European larch, *Larix communis*, have also been a valuable product. Since these are used entirely by the department for maintaining rails and fences on its large park system, no cash profit is made. However, there is little question that it is cheaper to "keep a cow than to buy milk," especially when such material is selling at seven to ten cents a lineal foot.

The third product from our softwoods is pulp cordage. A nearby linoleum plant is installing a process, imported from Sweden and adapted by technologists from the College of Forestry at Syracuse, that uses wood of any species and diameters down to an inch and a half.

For reasons too numerous to elaborate here, it has not yet been possible to make a cash profit on this operation. However, the cutting opens a previously dense stand so that future operations will be more profit-

(*Turn to page* 521)

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Editorial

The Tragedy of Maine

AS THIS issue goes to press, the tragedy of Maine is being written in headlines throughout the nation. Fire, racing out of control through explosively dry forest and brush lands, has overrun villages, claimed 20-odd lives, and destroyed forest and property values in excess of $30,000,000.

Parched forests, the result of weeks of drought, is the story behind the Maine disaster. But not the whole story.

Man, of course, cannot do much about the weather, but it is not to his credit that the tragedy of Maine bears a 1947 dateline. We know that great fire danger is always present in heavily populated areas; yet we do not always concentrate sufficient strength—even when we have it—in the danger zones to meet this threat. We know we cannot control human behavior in the woods; yet during critical periods we do not always take the drastic action called for. Lack of funds often has much to do with it—but even with funds we sometimes grow complacent.

Certainly by now we know that the cardinal rule of forest fire control is to take nothing for granted. Eternal vigilance is as much a watchword in the forest as it is in the home. And as for economy-minded legislators and officials, we submit these figures: the present national budget of $21,000,000 is $10,000,000 short of the $31,000,000 experts say is necessary for effective control of forest fires. Deduct this $10,000,000 budget savings from the $30,000,000 loss in Maine alone, and you have a realistic and, we hope, impressive example of wasted economy.

It's Time to Stop Romancing

IT IS not quite accurate to say, as does Arthur W. Priaulx in his article, "The Other Side of Forestry," on page 492 of this issue, that the forestry honeymoon is over in the Douglasfir region of the Pacific Northwest. A honeymoon, as we understand it, is the culmination of mutual affection, the sealing of the tie that binds two parties together "for better, for worse; for richer, for poorer; in sickness and in health; to death do us part." Unfortunately this isn't the situation at all—not yet, at least.

What is happening on the West Coast, in all important timber producing regions in fact, is that the trial marriage, for this best describes the war-born relationship of forestry to the timber operator, has reached the crucial moment of decision. And the question is not one of compatability. It is whether forestry can be an economic as well as a social asset to the timberman.

During the war years, when he had a market for anything that went through his mill, the operator found it profitable, for example, to go over lands once logged and salvage small stuff, defective logs, broken chunks and so on, material which in prewar days he could not afford to take out of the woods. Such close utilization, of course, was good forestry. And since it made money, the operator began to get ideas.

But today, shorn of his wartime markets, and with the future shadowed by uncertainty, the operator is asking himself whether or not he can continue with re-logging operations and other attentions showered upon forestry under the impetus of war-born prosperity.

This is understandable. Forestry is an investment, and no operator can stay in business long if his investments do not pay off. But then neither can he stay in business if his source of raw material is exhausted. Thus, as he debates his decision, his position, to paraphrase an old axiom, is about this—"he can't live without forestry, so he had better make up his mind to live with her."

We think he can—and will. And Mr. Priaulx reports the operator thinks he can—and will. "Many long-headed operators," he says, "believe that when forestry and management go through the economic blood bath of tough, post-bellum marketing and see what they are up against in the highly competitive life of the next decade or two, forestry will come out with rough spots knocked off and in a greatly improved position."

This is the language of the operator—and the words that should be italicized are *economic blood bath*. For therein lies the test of forestry in private enterprise—and the sooner this test is met the more rapid will be the spread of forestry to the commercial forest lands of the country.

It would be an illusion, however, to assume this is purely an affair of the operator and the forester. Economics add up to supply and demand, which means the consumer of lumber and other forest products has a part to play. Mr. Priaulx puts it this way: "What makes it possible for the timber operator to practice forestry is the cash register in the front office end of the business." Which is just another way of saying that so long as you, the consumer, will buy what the operator, the producer, has to offer, forest management will pay its way. When you cease to buy, there is no money for forestry.

Again, to use re-logging as an example, the great bulk of the material salvaged emerges from the mill as low-grade lumber. And as the situation stands today you, the consumer, are not buying these utility grades—at least not in quantities sufficient to encourage the producer to greater efforts in close utilization. Why? Most likely because, prior to the war, you developed the habit of demanding—and getting—the better grades of lumber, regardless of use.

"The simple truth," says Mr. Priaulx, "is that the lumber buyer has generally bought a better grade of lumber than he needed for the job.

This, of course, is not the whole answer to the rise or fall of forest management. For one thing, not all operators have fallen under the spell of forestry's alluring ways; there are still with us those who like their profits in their pockets, regardless of any promise forestry may hold for a longer and richer economic life. But certainly it is the basic one, and the sooner forestry takes its economic blood bath, the sooner we will stop romancing with trial marriages and get down to the practical business of growing trees.

"Catalpas in November"—by Koenig

TIMBER HOMESTEAD IN ALASKA

The dark ages of American public land policy return in the Lemke bill which, under the guise of "veteran benefits," would wreck Alaska's national forests and our last backlog of virgin timber

By ERLE KAUFFMAN

U. S. Forest Service Photo

IF Representative William Lemke of North Dakota has his way, war veterans not averse to spending twelve months in Alaska will be qualified to cut themselves in on as generous a handout as Uncle Sam ever made to his citizens. They will be eligible to file on homestead claims up to 1,920 acres on virgin public land, including millions of acres of old-growth timberland in national forests. Agriculture need not be their major pursuit. They may go in for farming, but also for fur farming, grazing and—get a good grip—timber homesteading. Or they may set up any combination of these.

They would not be required to cultivate or otherwise develop their land. All Mr. Lemke asks is that they prove they are deriving some part of their income from the claims—or, better still, an amount equivalent to some part of the income necessary to live on the land. This could mean cutting fuelwood (which they would have to do anyway) or catching fish or killing game—scarcely hardships for ex-GI's.

If they keep their axes sharp and their powder dry for twelve months on, say, a 1,920-acre strip of virgin forest along some shoreline in the Tongass National Forest (which the U. S. Forest Service, financed by taxpayers, has had under protective management for years), they would be in the timber business with 25 million board feet or more of virgin spruce and hemlock handy in their backyards. Or if the rain, fog and high winds of this fiorded region of southeastern Alaska became too monotonous, they could return to Broadway or Main Street and wait for a buyer, with plenty of good, hard cash in his pocket, to come a-knocking at their door.

Incredible, you say, with half the world's ills due to resource exhaustion. Yet that is exactly what is provided in the Lemke bill (H.R. 4059) which passed the House on unanimous consent calendar July 21, and which is now pending before the Senate Committee on Public Lands.

You could be polite about it and say such thinking belongs to the dark ages of American public land policy. But it would be nearer the truth to say that passage of this bill could well shatter the whole national structure of public land use and management. If the Lemke formula for public resource use is applied to Alaska, the immediate question is why should it not also be applied to California, Idaho, or any or all of the public land states. In the current open season on public lands, there would be many citizens keenly and not exactly impersonally interested in the answer.

No one, of course, wants to see war veterans deprived of benefits due them. But, as will be brought out, Mr. Lemke's proposition scarcely can be classed as a benefit, except temporarily to a fortunate few, and the 15 million World War II veterans, once they know the facts, would logically be the first to admit it. Simple arithmetic plus grim experiences in lands where resource wealth has been squandered or dissipated assure this.

If you know sprawling and undeveloped Alaska, you are aware that

The Tongass National Forest in southeastern Alaska literally rises out of the sea. Most of its virgin hemlock and spruce is along its 8,000 miles of winding coastline

it holds America's last backlog of natural resources. For this reason, if for no other, any policy that does not provide for enlightened and forward-looking handling of these resources would be sheer folly. This does not mean, of course, that northern flyways and waterways should be closed to homesteaders. Just the reverse is true. Alaska needs development—she needs new citizens who are willing to grow up with her, and she needs industries that fit into her resource pattern. An example of this is the pulp and paper industry which, barring unforeseen developments such as passage of the Lemke bill, will in all likelihood invest millions of dollars in permanent plants within the next few years.

Key to this development is the Tongass National Forest and its 78 billion board feet of commercial timber, mostly western hemlock and Sitka spruce, spread out over five million acres. This great forest—and here is the important thing to hold in mind—contains, along with the smaller adjoining Chugach National Forest, the great bulk of commercial timber in Alaska. Wreck these stands and the territory becomes unimportant in timber resources. Under proper management they will continue, while contributing to Alaska's development, to be a vital resource backlog.

The Forest Service is at present negotiating for the sale of cutting rights on specified tracts of timber in the Tongass—raw material for Alaska's first pulp mills. Each mill established would involve the investment of around $30,000,000 in plant and facilities — each would support in the neighborhood of 6,500 people. Should the Lemke bill become law, this development unquestionably would collapse. What industrialist in his right mind would risk that kind of money with his timber supply in several thousand different ownerships, subject to speculation? For certainly the bill sets up the perfect situation for timber speculators, and eventually large timber holding com-

panies, to take over. And there are other jokers in the Tongass woodpile to discourage large-scale industrial development. Patents, under the Lemke plan, would provide that claims be forfeited to the government if at any time timber is not cut on a sustained-yield basis (more about this later). And the bill contains a clause prohibiting the sale of homesteads for five years after patent.

Yes, there are a lot of things that don't show up in a quick reading of the Lemke bill. One is that if you really want to settle in Alaska existing homestead laws offer every inducement consistent with commonsense management and development of the territory's resources. You can take up a claim for farming, fur farming, and mining. You can file for trade and manufacturing sites, hotel and resort sites, for homesites. Lands for grazing purposes may be leased. Waterpower may be developed. Timber from national forests and other public lands may be purchased in any amount.

This sane procedure obviously fails to satisfy Mr. Lemke. Under the label of "veteran benefits" he would knock into a cocked hat long established national policy by opening for entry non-agricultural lands on national forests. He would increase the size of homesteads from 160 acres to not less than 320 and not more than 1,920 acres. He would reduce to twelve months the three-year period of residence necessary to obtain patent by crediting war service against requirements. Among other provisions in his bill is juggling of the size of claims so as to make it possible for a single homestead to spread out over six miles of shoreline (and thereby drastically reduce the number of desirable sites).

But wait, veterans, before you start another Klondike gold rush. There's fool's gold as well as the real stuff in that vast territory to the north—and Mr. Lemke's proposition assays heavily in this direction, as you will presently see. To begin with, the odds on your actually striking pay dirt would be pretty long—and even should you be fortunate enough to hold a winning number, there is a chance you wouldn't collect. And while you're waiting, reflect upon this: five trees were cut in the nation's forest to service and supply *each* of the 15 million men and women in the armed services during the war. They were there to cut because this nation long ago substituted a policy of sound forest management for reckless exploitation.

Now about your chances of hitting the jackpot on the Tongass. First, remember you are one among millions of veterans eligible for the pot of gold. Then picture the Tongass as a fiorded region where the land literally rises out of the sea. The timber stand is heavy at shorelines but fades out at about 2,000-feet elevation. About 80 percent of the timber volume is within a mile or two of the water's edge—strung out along 8,000 miles of winding island and mainland coastline.

Naturally those who get there first will locate their claims so as to take

These are the forests the Lemke bill would open to veterans. Homesteads could be strung out along the coastline where the best timber lies. Sitka is in foreground

U. S. Forest Service

© Otto C. Schallerer

Ketchikan, heart of Alaska's great forest domain, may suffer an unhappy fate if Congress reverses present policy and permits timber homesteading on national forests

in the maximum length of shoreline. This would be good business, as it would give them the greatest amount of the best timber. But let's be moderate and assume the average claim would be two square miles, or 1,280 acres, instead of the maximum 1,920 acres. On this basis there would be space on lands of commercial value for around 3,000 veterans. All others would be left out in the cold. Thus the "veteran benefits" part of the Lemke bill boils down to this—on the Tongass forest only one in five thousand (World War II basis) would be on the receiving end. Hardly in the American tradition.

The average shoreline timber claim on the Tongass would contain around 25 million board feet of merchantable timber valued at more than $1 a thousand feet on the stump, which means the average claim would be worth at least $25,000, the maximum claim close to $40,000. A nice windfall for the fortunate few.

But wait—they haven't cashed in on it yet. The Lemke bill specifies that nine-tenths of the timber acreage in each claim must be cut on a "sustained-yield basis." This suggests safe and sound forest procedure, what any good forester would recommend. Only you can't do it on the Tongass. Timber farming, or harvesting on a year-by-year basis, as sustained yield implies, is simply not practicable in southeastern Alaska on units as small as 1,920 acres. High winds, rain-soaked ground most of the year, large trees with shallow root systems and many other factors make it impossible to remove individual trees from small units without causing the remaining timber to blow down. It is necessary to use what foresters call the "staggered block system" of cutting in which all merchantable trees are removed in one operation from fairly large areas. Carefully located blocks of seed trees are left to provide for the production of new crops.

And this isn't the whole story. Even if the sustained-yield factor did not exist there is the matter of logging equipment. To efficiently handle southeastern Alaska timber, you need donkey engines, tractors, heavy cable equipment and tugboats — about $35,000 worth all told. A haywire rig made up of used equipment might see you through if you are not too particular about efficiency. But even this would cost in the neighborhood of $20,000. Rather expensive for a "benefit," don't you think?

One other thing should be mentioned about the Lemke bill. Where the Tongass National Forest is concerned, agriculture is out. Only one percent of its total land area, or 41,000 acres scattered in 425 tracts, can be classed as agricultural. Up to the present, but 186 homestead claims have been filed, 34 to be abandoned before patent was issued, 69 after patent.

The fact of the matter is that, despite its homesteading theme, the Lemke bill throws up a series of roadblocks to successful homesteading—on the Tongass forest, as least. Appraised coldly, it amounts to little more than a handsome handout to a small group of veterans who know the shortest route north. With the odds against an honest effort at settlement, the natural procedure would be for them to return after claims are patented to Detroit, Boston, or Keokuk and wait out the five-year period required by the bill before selling to the highest bidder.

And here's where the speculators and timber holding companies come

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Re-logging in the Cascade region has salvaged an average 10,000 feet of lumber an acre

K. S. Bro

This valuable Douglasfir stand was marked for thinning to keep crowded trees from dying

THE OTHER SIDE OF FORESTRY

By ARTHUR W. PRIAULX

WEST COAST SOCIETY ITEM

It is rumored that the wartime marriage of convenience of Mr. and Mrs. Timber Operator, which had been going along so swimmingly, even though first established on strictly business grounds, may not last. Mrs. Operator, who will be remembered as the charming and enthusiastic Miss Forestry, has had some violent quarrels with her husband in recent months. She is getting provoked at his continual harping on having to "make her pay."

"You never talked like that during the war," she pouts.

YES, the honeymoon is over out here in the Douglasfir timber country. There have been some mighty disquieting reports from logger friends in recent months that coy Miss Forestry, "ain't got no money sense." Regularly every Saturday night though, the calk-booted lads line up to take her a-dancing, even though she still "has her head in the clouds and insists on ordering the most expensive meals."

Which is another way of saying that forestry and forest management, which made fabulous advances in the West Coast region during the war years, is entering a period which will put many of the theories to severe practical test. Commercial foresters are now more than ever confronted with the need to sell their long-range management programs on the realistic basis of sound economics.

It can be truthfully said that forestry has come of age on the West Coast in the period since 1935. Industry, tasting prosperity for the first time in years, and willing to do some exploring, increased the number of trained foresters employed from 55 to well over 300. In that same term, West Coast timber owners spark-plugged the successful tree farm movement, and have now certified more than two million acres of private forest lands in Oregon and Washington; and they have seen their ideas adopted in a score of other states where nearly 14 million acres of forest land are now under intensive forest management.

Conversion of waste blocks such as these into end-grained flooring helps pay the bill for forestry

Timber owners, once bitten by the forestry bug, did other things: they established the "Keep Green" movement, which has been as successful as the tree farm program in its effectiveness in reducing man-caused forest fires and their contagious spread over the nation; established cooperative tree farms like Willamette Valley Tree Farms, Inc., where a staff of scientific foresters is on call as at a clinic; undertook re-logging of once logged lands to regain additional values; experimented with prelogging thinning to save small trees for pulp and piling use; joined in sponsorship of Forest Industries Nursery at Nisqually, Washington, where millions of seedling trees are grown every year in a streamlined production plant that operates like a factory.

All these activities in forest management have one thing in common —they cost money. In fairness, it must also be said that they have earning possibilities of their own. Tree farming and forest management have one other similarity—they require long-range planning, 25, 50 and 100 years—much beyond the life of ordinary mortals. Any plan adopted today, in addition to all the hazards and obstacles in the path of ordinary business, must assume like thinking on the part of men not yet born, who will one day manage these properties

on which programs for three generations are being set up.

Certain fundamentally sound forest management activities which have already proved themselves from a business standpoint, are certain to be carried on down through the years. There are other explorations in the field of forest utilization and management which have yet to prove their practicality if the governing factor is current economics.

In the first category should be listed forestry plans which include full stocking of all forest lands, for with the shrinking of virgin timber holdings second-growth stands have assumed tangible values which will stand up on a balance sheet. Intensified fire prevention programs also would be listed as good business. The timber saved can be translated into hard cash. Included too should be the very marked development in the field of closer logging, re-logging and maximum utilization of the wood grown on every acre.

In the list of important experiments and explorations in the field of forest crop improvement, should be included thinning, limbing to grow clear logs, pre-logging where definite values can be salvaged ahead of heavy logging, and selected harvesting of decaying stands. There is progress in these important efforts to improve forest crops, but again the widespread use of these methods will depend upon the ability of the commercial forester to make them pay their way. There is also the question of whether some of these are good silviculture. Will they make better future timber stands?

During the war years forest utilization reached an all-time high. Small loggers and large timber companies found it good business to go back over land once logged and re-log or salvage log. In this second-time-over landowners found they were able to reclaim as much as 10,000 feet of usable logs from each acre. This was not only good economics, adding as much as one-fourth to the volume of wood gotten out to mill and plant, but it was good forestry. Land was left in excellent shape to regenerate. Fire hazards were pretty largely removed. Seeds found a fertile and prepared ground in which to germinate.

You may ask—"What kind of logs were the first loggers leaving in the woods and why were they leaving as much as 10,000 feet an acre?" In these logging leftovers were found some peeler logs, of short length, but generally the salvage operator came

Is the forestry honeymoon over on the West Coast? Yes, says this observer, pointing out that from now on forest management must meet the test of sound economics, with all eyes on the consumer

up with small logs, broken chunks, short logs, logs with as much as half defect. Most of the stuff had been left originally because an operator with big crew and big equipment would go broke trying to log and load and haul it to market. A small crew, with two, three, or four men, and light equipment, with low overhead, could bring this material out and make money for the owner—or at least break even. The re-logger had no roads to build, little if any trees to fall.

Of course, the real reason why these odds and ends from the forests could be brought out was that there was a market for them during the last few years. In other words, the landowner or logger could afford to reclaim an additional 10,000 feet of wood from each acre because he could sell it at more than it cost him to bring it out.

Basically the bulk of the re-loggers' salvage can be classed as wood logs. If these wood logs are run through a sawmill, as most of them have been, they come out lumber—but not high-grade lumber. The great bulk of the realization from these logs is in the form of low-grade lumber—numbers two, three and four common.

It would be good forestry to keep on re-logging, or to do a closer job of cleaning up as the old-growth forests are cut. Every broken chunk, every tree top, every defective log and short piece could be taken—and it would be excellent forestry. Land would be left in perfect shape to reforest and the fire hazard would be

Most land restocks naturally in the Northwest, but badly burned areas must be hand-planted — at $15 an acre. Is it a sound investment?
K. S. Brown

K. S. Brown

This lineup of rolling stock represents the fire protection equipment of one West Coast tree farm. Expensive, yes, but timber owners have learned that it is even more expensive not to have it for emergencies

reduced to a minimum. Also, the landowner would be adding to his net take from the land.

But there is a stopper. Unfortunately, it costs money to re-log. Re-loggers want good wages, and they get good wages; logging equipment costs much money. Today, the great volume of low-grade logs must be turned into lumber and that lumber is in the lower grades. The present market for these grades is about as soft as a feather bed.

There have been some who advocate taking out these low-grade logging leftovers and turning them into alcohol, fiberboards and other products which can be made from wood. There is so much of this low-grade material, however, that if converted into alcohol, the industrial alcohol market might well be broken. If converted into fiber wallboards, that market would soon be glutted.

The problem, if this great volume of wood is to be converted from broken pieces, small logs and chunks into usable consumer goods, is to select end products which will consume great quantities and for which there will be a demand. It is good business to clean up every bit of wood from these forests. Operators, almost without exception, agree with basic forestry principles. Their loggers have the brains and the know-how, coupled with the equipment, to bring in anything that grows in the forests. In their factories and sawmills they have this same know-how to convert tops and broken pieces into usable goods.

There is no choice. The major item into which these leftovers can be turned and for which there should be a limitless national demand, is low-grade lumber. But here is the catch. Right now the public isn't having the utility grades in quantities sufficient to warrant expansion of manufacture. That means only one thing—the re-logging program must slow down.

The one hope lies in education of the public. The public needs these utility grades and there are hundreds of ways they can serve useful requirements. The simple truth is that the public has been spoiled. The lumber buyer has generally bought a better grade of lumber than he needed for the job. The attitude of the typical home buyer today tells the story—he wants a "Cadillac" quality home for "Ford" prices. Stated another way: these utility grades, which are problem children for the sawmill industry, are the "Ford" grades of lumber, perfectly suitable for low-cost homes and just as durable in their place as "Cadillac" grade lumber in its special place. Whether the home costs $5,000 or $50,000 there will be places where both excellent quality and utility grades can be used with perfect propriety.

It may be a radical departure from the conventional to discuss forestry in terms of products and markets and merchandising, but this writer ventures the opinion that foresters of the future will be trained in these fields as well as in the science of tree care, protection and growth. What is discussed here is the other end of forestry, the part that makes it possible to practice forestry—the cash register or front office end of the business.

The honeymoon may be over on the West Coast between the hard-headed operators and the more academic foresters, as far as the salad days are concerned. But there are good days ahead. Many longheaded operators believe that when forestry and management go through the economic blood bath of tough, post-bellum marketing and see what they are up against in the highly competitive life of the next decade or two, forestry will come out with rough spots knocked off and in a greatly improved position.

What are the most encouraging signs? First, without question, is the attitude of major owners who are willing to "go along" in exploring all phases of forest management. Second, the increased importance and standing of foresters in the active management picture of operating companies. Third, the changing attitude of logging supervisory personnel toward the "college man with the chokebore pants" in the woods. Fourth, the practical, down-to-earth approach by many foresters to their problems, their increasing acceptance of the need for better public relations, their improved background of engineering and operating problems which enable them to apply the practical and the theoretical together. Fifth, the great impetus given practical forestry under wartime stimulated realization.

What about the future of forestry in the West? Now that wartime evidence of accomplishment has been pretty generally appraised and a return to normal postwar markets has started, a fairly clear picture can be drawn. Forest management is here to stay, and more and more the scientific forester will have a stronger voice in management plans. The reason is apparent: limitless supplies of wilderness timber are fast disappearing; companies are up against practical problems of growing and managing second and volunteer crops and will need men trained in this business.

The spread of intensified forest management will, of course, be controlled to a large degree by a relatively new activity in the lumber industry—merchandising. Basic forestry—protection, stocking and elementals of cropping—will be musts. More complete forest practices—re-logging,

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THANKSGIVING

By JAMES B. CRAIG

A Washingtonian (one of the imported variety) gloomily reports that he is looking forward with no great relish to eating a melancholy Thanksgiving dinner alone at his club. It's a bleak prospect, he admits. Last year, when he was forced by circumstances to undergo the same ordeal, his waitress, who was looking forward to a sumptuous repast at home with twenty members of her family, was openly sorry for him. Yes, he had relatives, he told her, but they didn't seem to know about him.

This is not surprising in an age when we seldom have more than a nodding acquaintance with our first cousins and stutter over the names of all others down the line. We might as well face it—families have drifted apart. In this era of excessive bustle and hustle we seldom get together in quantity any more.

Our grandmother would have deplored this as shocking and, discounting all flimsy excuses, would have set about eradicating this iron curtain in family affairs. To her, family was everything, and she was especially pleased when she succeeded in digging up another relative, no matter how remote the connection, and would talk about it with the gusto of an explorer describing a new ice shelf he had uncovered in the Arctic. We can still see grandma busily engaged putting another leaf in the big oak table and smoothing down a gleaming white tablecloth as she cheerfully observed "always room for one more," when informed that Cousin Henry's relatives on his wife's side were coming for Thanksgiving dinner.

Grandma gloried in work. It would be hours before daylight on Thanksgiving morn when her lights would twinkle on. She would dress in a jiffy and start for the kitchen with firm purpose, tying her apron strings as she swept down the stairs. After coffee and doughnuts she would pause briefly, lightly fingering the cameo brooch on her high lace collar, as she mentally organized her herculean task. Sometimes she talked to herself as she enumerated such vital statistics as "ten pumpkin pies, no twelve—better play it safe." Grandma was a great organizer and the secret of her success was production.

After milking, grandpa would bumble around clumsily in the kitchen and annoy grandma with idle talk and details she had already disposed of. She always made short shift of him and would shoo him out, permitting him only to replenish the big woodbox by the roaring cookstove with armfuls of pine, chestnut and maple from the adjoining woodshed.

Then the relatives would start coming from as far away as ten miles. There would be much pecking at cheeks and a mighty taking off of wraps. The women would scurry into the house but the men would go down to the barn where grandpa had charge of putting up the horses, letting down timothy hay, cleaning up any harness that might have been muddied enroute, and parking the carriages in the barnyard — Uncle Bill's first, as he had the farthest to go and left the earliest. While sitting around on the grain bin the men would make much ado over the fact they weren't wanted in the house, but actually they preferred the warmth of the horse barn with its brightly colored picture of Dan Patch and one of grandpa winning the sulky race at the state fair.

In the house, grandma would find time to admire the new babies, compare ailments and cluck admiringly at new best dresses while skipping in and out of the kitchen which, by this time, would be exuding tantalizing aromas. Then the men would come in from the annual tour of the farm, having admired grandpa's woodlot, heard his annual discourse on what fields he was going to plant to what next season, inspected his apple and potato bins and sampled the hard cider in the cellar.

At this point grandma would briskly start the transportation of food from kitchen to dining room. To her, this was the crucial point of the day and any child who got under foot was told to "look sharp."

Then everybody would sit down, the rustle resembling that of a church congregation receding to its pews after singing the first rising psalm. Grandpa would say grace and reach for the carving knife and everybody would look up after the "Amen," unfold their napkins and take a drink of water. For some reason, conversation always seemed to dwindle as grandpa solemnly carved and served, with grandma hovering over the table, her oven-warmed face cherry red, indulging in such little hypocracies as, "I really don't know what happened to those dumplings to make them so heavy," and Uncle George, the frank member of the family, would say, "Oh, pshaw!"

Then the multitude of relatives would fall to and helping would follow helping until they would rise unsteadily, a glassy, lackluster look in their eyes, and move to the parlor. There they would sit uncomfortably on the bristly horsehair furniture.

Family affairs would now be taken up and when conversation took a tart turn, due to sluggish digestion, grandpa would cast his eye over the younger fry. The youngsters would squirm at this point for they knew what was at hand. "I think it's time we heard from the young folks," grandpa would say and fond mothers would immediately start pushing their children into the center of the room to recite, sing, or do bird imitations.

In truth, these performances were generally anything but talented, with the performers squirming uneasily in a manner that would result in the child's mother leaning toward his father and stating in a low but audible tone, "Remind me to take John to the you-know-what when he gets through." Applause would be enthusiastic but brief unless some unhappy child gave the impression of enjoying what he was doing.

By this time the shadows would be lengthening in the orchard on the south side of the house and the family would start rising, Uncle Bill first by reasons of seniority and distance, and leave.

Then it would be quiet at the old homestead again. Grandpa would shuck off his shoes and wiggle his toes in red-tipped socks against the brass andiron of the fireplace. Then reaching to the apple bowl he would skillfully start paring a northern spy, the thin skin one long unbroken length. Grandma would sit quietly nearby in a straight-backed chair, hands folded. But her eyes would dance as she mentally went over the day's triumphs. The dumplings really *were* very good. But they would be even better next year.

Adventure in Solitude

By CHARLES ELLIOTT

I'VE HAD my share of adventure. I've known those moments in the wilderness when suddenly drama is in front of you—and you are a part of it, thinking fast, moving fast. Then it is gone and you sit down with quaking knees, piecing the little bits of action together for a full story.

To those who love the wilderness, said Bryant in more poetic terms, it speaks a various language. In the deep woods the artist finds charm vastly different from the attraction the same trees hold for the lumberman. The old prospector sees his shimmering desert with eyes the naturalist could never appreciate. For each man the trees, the stones, the running brooks speak a language he can understand.

But no matter what the quest, all who seek the wild tread the path to adventure. And frankly I, for one, have come to anticipate that fleeting second when life and death is measured by the breadth of a hair, for that fast-moving wilderness drama when life may hang in the balance.

Yes, those moments have come to be my meat of the wilderness, my sustenance of the solitudes. And I've had my share of them.

Steve and I were on the famous Suwannee River. We had broken camp at daylight, packed our duffel in the canoe and all morning had traveled leisurely along the black water trail which led between walls of emerald pines and gray cypress trees draped in flowing tapestries of moss. The river was alive with birds, warblers in their quick, tireless search for food, great herons that rose on lazy wings and flapped grotesquely out of sight, anhingas with their crooked necks and primitive flight—all a moving panorama of color and sound. The day was quiet and azure blue. We had caught two fish for lunch and were drifting along, lost in pure enjoyment of the day, when Steve leaned forward and touched my shoulder.

"Look," he said, "on the sand bank to the right. Young alligators."

I jerked my eyes shoreward. The tiny gators, eight inches long, were sprawled in the sun. Steve took a noiseless slice of water and the prow swung ashore. The moment it grounded against the fine sand I was on the bank, cutting off the escape of the young reptiles.

Steve was close behind me. I caught one that chewed ineffectively on my hand and called for help in plaintive squeaks. Steve picked up two more before the dozen scaly babies made the river.

I never knew exactly what happened after that. I heard Steve yell, "Look out!" The air was full of a bellowing roar, the entire sand bar alive with leathered fury. The mother gator, lying in the woods behind the river had come to the assistance of her young. I leaped for the fringe of willows that sprouted where the bar was thin. The crash of water brought me around. Steve was standing helplessly at the other edge of the sand bank. The canoe floated upside down in an eddy of the river current. Two paddles drifted lazily beyond it. Steve waded to his armpits and caught the paddles. We beached the canoe. While our clothes dried on the willow scrub, we dived for equipment, found only a heavy tackle box and a gun which had gone to the bottom of the stream. The remainder of our tackle, food and extra clothing had been swept into the black current.

We made a long, hungry trip to the next river bridge. Steve theorized that the mother reptile, boiling over the edge of the bank to defend her young, and finding humans there, had taken the nearest escape route over the canoe to the river. My only emotion was relief that I had not been in her path.

I never see young gators now that I don't take a long, careful look around for the mother and think of that sudden explosion of bellow and snout and tail which easily could have ended in disaster.

Sometimes I light my pipe, prop up my feet and spend long minutes thinking back to some of my earlier days with the U. S. Forest Service in the Rocky Mountains. Through the haze of smoke I see massive slopes that stand on end, forested plateaus at twilight, cold and clean and perfumed with the tang of balsam, and I hear the thunder of white water in lost canyons. I see Larsen, the ranger, tall and spare and ruddy-cheeked from the wind. I see campfires and stars and trails of a West that was wild and not too thoroughly explored a quarter of a century ago.

Larsen and I were in high country, close to timberline, looking out a trail that led into the back side of an Indian reservation. I was ahead of him on a rough slope, working my way to the edge of a cliff that bordered a gigantic rock slide. I stepped on a narrow ledge of rock and raised my eyes to look for a handhold. I was face to face with the biggest grizzly I had ever seen. For a split eternity we stood there, almost at arm length. I was unarmed, except for an Abney level. Larsen, 20 feet behind me, had an ax. I was too paralyzed to move, too terrified to yell. The grizzly made a low, rasping noise in his throat. Then he turned unhurriedly and majestically and walked out of sight around the base of the cliff.

"Move on," the ranger said, at my heels, "so I can climb up behind you on the rock."

I had to show him claw marks on the thin moss before he would believe I had stood within slapping distance of a big grizzly.

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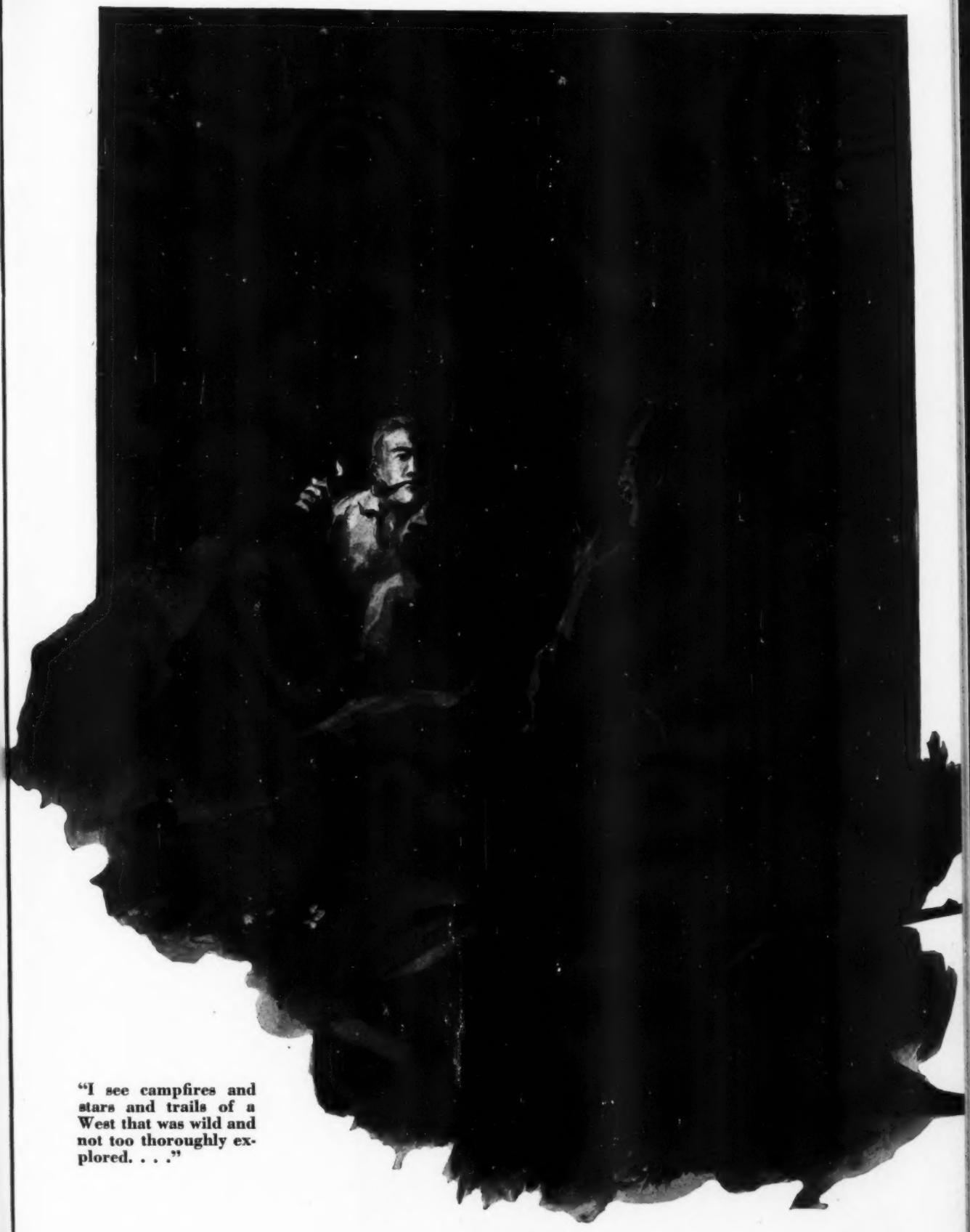
If you like your adventure undiluted, take up the wilderness trail. But here's a warning — it will strike when least expected, and with lightning speed



"I see campfires and stars and trails of a West that was wild and not too thoroughly explored. . . ."

BETTER PINES FOR TURPENTINE

By KEITH W. DORMAN

THE production of naval stores —turpentine and rosin—from pine trees is one of the oldest forest industries in America. It began, of all places, in Nova Scotia, in 1606. Shortly afterwards it was introduced to Virginia and since that time the center of the industry has moved south to the longleaf-slash pine forests of Georgia. However, the passing of centuries has seen few changes in the methods used to obtain the fragrant pitch or crude gum. Workers still seek out the wild trees in rough woods. The trees now tapped are smaller in diameter and more widely scattered since the passing of the virgin stands.

Quite different is the case with a much younger industry which also obtains its raw product by tapping the living tree—the natural rubber industry. Here production efficiency has been increased to a marked degree by the breeding of superior trees that are grown in well-managed, orchard-like stands.

In 1876 the British smuggled rubber tree seeds out of Brazil, took them to Kew Gardens in England, and later introduced the species to Ceylon, Malaya and the East Indies. There, early in the present century, the British, French and a few Americans started large plantations to supply an expanding rubber market.

A mere twig on a slash pine branch three years ago, this tree grew eight inches the first year, 16 inches the second and 41 the third

From 1910 on, these well-developed and well-managed plantations, largely because of their production efficiency, began to play the dominant role in world rubber production, and the harvest from wild trees in the Amazon Valley and elsewhere became less and less important and profitable. When superior stock replaced run-of-the-mill trees in the plantations, yields jumped from an average of 380 pounds an acre to over 1,200 pounds. Later, with an intensive selection and breeding program, high-producing trees were developed and these are expected to yield from 4,000 to 5,000 pounds of rubber an acre. Thus, by greatly increasing the average output per tree, production costs have been lowered sufficiently to meet competition and at the same time to permit good wages for labor and an adequate return for the producer.

While rubber production was going up in the Far East, pine gum production in America was going down. The transition in southern forests from virgin pine to scattered stands of smaller trees had a marked influence on the gum naval stores industry. Production declined from a peak of 750 thousand units in 1908 to a record low of 244 thousand units in 1945. In this decline the two most important factors were fewer, smaller trees and increased competition from other raw materials.

In today's scattered stands, the turpentine worker spends approximately two-thirds of his time walking from tree to tree. He can chip an average of only 5,000 faces a week, as compared to the 10,000-face crop which his grandfather worked in the more fully stocked virgin forest of his day. Moreover, because the timber is considerably smaller than in the virgin forest, the yield per tree is much less. Thus, because of decrease in tree size and number an acre, the season's production of each turpentine chipper has fallen to not more than one-quarter of what it was 50 years ago.

The scattered second-growth stands of the turpentine belt average about 20 working trees an acre. These trees are relatively small, averaging per-

haps 11 inches in diameter at breast height, because almost every tree is tapped when it reaches nine inches in diameter, and subsequent growth is reduced. Gum yields are accordingly low, averaging about eight and three-tenths pounds a tree a year. Production per acre a year amounts to only 166 pounds of crude gum.

Assuming a 12 by 12-foot spacing, and that 80 percent of the trees would survive and attain workable size at about the same time, a planted turpentine orchard should have at least 242 trees an acre—more than 12 times the number in the average forest. By using superior trees, with a yield capacity twice that of run-of-the-woods trees of the same size, the production an acre of a turpentine orchard averaging 10 inches in diameter could be increased to 3,500 pounds a year—22 times the present average for rough woods. Such production is well within the realm of possibility, as superior individuals capable of yields more than twice that of average trees have already been located. Breeding work now in progress with these superior trees may be expected to produce ever higher yielders.

A basic task in any plant improvement program is the locating or selection of superior plants for breeding stock—those individuals which occur rarely throughout large numbers of their kind. Once found, they may be used as parents in controlled breeding or as a source of material for rooting or grafting. The new plants, either from cuttings or from grafted stock, will possess all the characteristics of the orignial. The problem in this case was to find such trees—trees with a high production of crude gum.

Every naval stores man knows that gum yields vary widely between trees. He is familiar with the exceptionally large, open-grown tree with roots in a pocket of rich soil. But there is nothing curious about the high yield of such individuals, growing under unusually favorable conditions of soil, light and moisture and possessing unusual diameter or size of crown. There are stands of timber, however, where all factors affecting gum yields are similar, yet one of the trees may produce twice that of its neighbors. These are the inherently high yielders needed for the development of a superior breeding stock.

Consequently, in 1941, scientists of the Lake City (Florida) branch research center, then under jurisdiction of the Southern Forest Experiment Station, U. S. Forest Service, began looking through the naval stores stands in Georgia and Florida for promising trees which were yielding over twice as much gum as adjacent trees of like size, age and year of work. When a number of these superior trees were located their yield was measured each week throughout the summer, as was that of from 30 to 50 adjacent trees. All selected trees were carefully chipped and the gum accurately weighed. Under such careful study, a few failed to live up to previous records and were discarded. A dozen, however, produced from two to two-and-a-half times that of their companion trees. These were selected as foundation breeding stock.

In cross-breeding pines, windows in canvas bags placed over flowering shoots show observer when female flowers are ready for pollination

It is a well-established fact that propagation by vegetative means assures progeny with all the characteristics of the parent. Thus with methods of rooting cuttings from slash and longleaf pine many plants could be produced, each a high producer like the parent tree. But twigs and buds from slash and longleaf pine had never before been rooted or grafted. Here then was a vitally important problem, one in need of early solution if rapid progress was to be made.

After testing many techniques of proven value with other plants and retaining those features which gave better survival and more vigorous cuttings, the Lake City scientists

If experiments now under way in Florida are successful, the naval stores industry, like the rubber industry, may some day center around orchard-like stands of superior trees

eventually were able to root cuttings from slash pine. Later, the treatment was found effective with longleaf pine cuttings, putting the researchers well on the road toward the solution of the problem of vegetative propagation.

The most successful method of rooting is to treat the bases of cuttings for one day in a solution containing plant growth regulators, vitamin B_1, sugar, and all essential mineral nutrients. After treatment, the cuttings are planted in heated sand beds in the greenhouse. Unfortunately, exuding resin seals the bases of the cuttings so that they can take up very little water from the sand. To maintain the moisture content of the cuttings until they root, a fine water spray is applied for a portion of each 10-minute cycle throughout the daylight hours.

Using this method, rooted cuttings have been produced from the high-yielding trees, and a plantation has been established. Here growth will be measured and, when the trees are of suitable size, their gum yields, for comparison with other cuttings from other parts of the South. Although these trees are now several feet high, they are not quite ready for tapping, even with small-scale experimental methods. Growth, however, has been rapid and the trees are of good form.

While plants of superior quality may be obtained by propagation of special trees, the germ plasm itself is not improved. Thus, yield capacity can be established at a certain level—and this level is the point beyond which no better plants exist in nature. To climb beyond, it is necessary to combine the qualities of several plants, produce large numbers, and select those with valuable traits and discard the undesirables. This can be done only by cross-breeding.

While tree breeding is considered by some as a relatively new practice, it has received the attention of some investigators at various periods during the past century. Artificial hybrids between related forest tree species were produced in Germany in 1845 with pine, oak, elm and alder. Ness, working at Texas Agriculture College, produced a few hybrids between live oak and overcup oak in 1909. Henry, working in England, produced several fast-growing popular hybrids and, in 1916, published a paper on the possibilities of obtaining rapid-growing crosses. Tree breeders in this country have recently done a great deal of work with poplars, chestnuts and some of the pines.

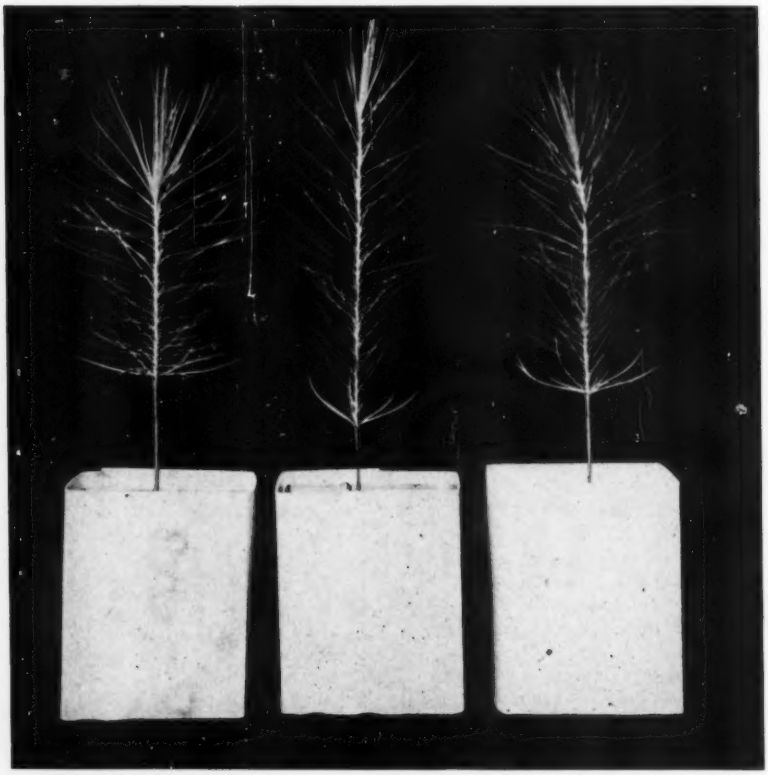
Crossing superior slash pines may produce some trees which are superior to either the father or the mother. Furthermore, crosses between slash pine and longleaf, or some other naval stores species, may combine the desirable characteristics of both into a new plant. Such a combination may never occur in nature because of differences in time of blooming or geographic location. Once a superior plant is developed it may be perpetuated and multiplied by vegetative propagation.

Controlled breeding with the flowers of 70-foot pine trees is not an easy job. Female flowers are generally produced on the upper branches and, during the blooming period, each tree must be climbed a number of times. In mid-January the parent trees are examined to determine the number of flowers and their stage of development. Next, small bags are placed over each flowering branch tip to exclude undesirable pollen. At the proper time pollen from the desired parent tree is introduced into the bag and shortly afterwards the bag may be removed. Some 19 months later the ripened cone containing pedigreed seed is ready for collection.

Production of new and different plants through breeding is a fascinating job and the possibilities are unlimited. When compared with the advances that have been made with field crops and ornamental plants, forest-tree breeding can be considered little more than a toddling infant.

Seedlings from the first breeding work with high-yielding slash pine at Lake City are now growing in plantations, along with seedlings from average parents. As soon as they have reached a suitable size, they will all be tapped and their yield capacity determined.

The future may see many changes in the naval stores industry if efforts to develop a superior pine tree are successful. A good start has been made with the discovery of high-yielding trees, development of methods for propagation, production of hybrid seedlings, and establishment of progeny tests. As in the rubber industry, the naval stores worker may someday work in orchard-like stands of superior trees.



Little trees with a big future. On the left, a six-month-old seedling from average slash pine parents, while the others are slash-longleaf hybrids from trees which produced more than twice as much gum

Trees of Friendship

Ever receive a forest in the mail? That's what happened to Mel H. Buether when peace-loving nations the world over got behind his plan to plant trees as a symbol of international friendship

By WELDON D. WOODSON

ONE morning early this year, Mel H. Buether, a Los Angeles banker, sat at his desk and doodled idly on a scratch pad. He was searching for an idea that could be used to help cement amicable relations among the nations of the world and boost world trade.

Like many another American businessman, Buether is a booster and devotes a generous portion of his time to "do good" programs. His appointment as chairman of the World Trade Committee of the Los Angeles Chamber of Commerce was a tribute to a man who has a reputation for originality and getting things done.

Buether's task on this particular morning was to conjure up a suitable plan that would symbolize the friendly relations that exist between the United States and other nations. Whatever he decided was to be announced in May during World Trade Week when chambers of commerce throughout the nation would launch programs promoting the theme that world trade is essential if the different nations are to attain the highest possible standard of living.

Thoughts of ships, railroads, trucks and airplanes—all key cogs in the development of world trade—filtered through Buether's mind. But somehow these lacked the spiritual qualities which are the essence of sincere, abiding friendship. Something more was needed, something that would provide a note of warmth and serve as a close link between the various countries. What, Buether asked himself, is one thing that all peoples have in common that could be used as a peg for world friendship?

That was when he thought of trees.

Some of his associates shook their heads when Buether proposed that nations of the world be invited to send trees to be planted in Los Angeles. Radio programs eulogizing trees with poems and essays were one thing, they argued, but importing trees from the far corners of the earth was—well, impractical to say the least.

But Buether failed to see it this way. He contacted the U. S. Department of Agriculture and the state agricultural department to determine what foreign trees could be admitted to California. After this he went into a huddle with Gilbert L. Skutt, superintendent of Los Angeles City Parks.

"We've just the spot for your 'Trees of Friendship'," Skutt said, "and that would be Exposition Park where the 1932 Olympic games were held."

Buether next got in touch with the consuls of 56 countries and shortly thereafter invitations to participate in the plan were sent out. The response was immediate. Within four days after he talked with Dr. Adrian Hartog, Netherlands consul, the first tree arrived by airplane from Batavia in the Dutch East Indies. It was a specimen of Teysmann Rhododendron bogoriesne, a native of Borneo, from the botanical gardens at Buitenzorg.

Before long other trees arrived. Mexico sent an ahuehuete, which dates back to the days of the Aztecs. In a box beautifully enscrolled with Chinese characters, China shipped a ginkgo, which symbolizes sturdiness of character and brotherly love. On its journey to California by plane, an attendant watered it every three hours.

Guam sent a small iba tree, Canada a Canadian maple. From England came an oak, while Holland and Denmark sent beech trees, Ireland a golden yew. A Sitka spruce was the contribution of Alaska; Hawaii furnished a monkey tree. From Uruguay came a ceibo, from Peru a uncumanu tree. Belgium sent a pine, Australia a banyan. In all, more than 40 nations have responded.

This amazing response to his project gave Buether another idea. So much altruistic activity and enthusiasm should commemorate not only World Trade Week, but something more. Why not, he asked himself, dedicate these trees to the United Nations. In the years to come they might well serve as living monuments to humanity's effort to settle the nations' differences around the

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The trees were planted in Los Angeles' Exposition Park, scene of the 1932 Olympic Games, and dedicated to the UN. Mr. Buether is shown below with some of the trees on the occasion of the planting ceremony

Los Angeles Times

LEARNING BY BURNING

The principle of staging a demonstration to illustrate a point is being effectively applied in the Tennessee Valley, where school children, under the watchful eyes of foresters, are learning about forest fire damage by burning the woods

By CHARLES R. PAGE

IF YOU round a curve on some Tennessee Valley road and come upon a group of school children setting fire to the woods, don't jump to the obvious conclusion. Stop and investigate. You will find them well supervised by teachers and foresters, all wrapped up in a project that involves learning by burning.

The theory is this: burning a half-acre of woodland may save 1,000 acres. It's the age-old principle of staging a demonstration to illustrate a point—the point in this case being forest fire damage. On this particular demonstration only an acre is involved, one-half of which is burned each spring, the other half protected from fire. Over here is what happens if you burn the woods—over there is what you have if you don't burn. No need to take anyone's word for it; the proof is right before your eyes.

About 30 of these demonstration plots have been set up throughout the Tennessee Valley by Future Farmers, 4-H Clubs, Boy Scouts, civic clubs and timberland owners. Foresters help lay out the plots and collect the records. Where there is a local fire control organization, the fire warden is invited to take a hand in the demonstration.

The idea is not new. Professor L. M. Ware of Alabama Polytechnic Institute, established similar plots as early as 1927. But he was primarily interested in scientific research. The plots now springing up in the Tennessee Valley under the leadership of state forestry agencies specialize in "seeing is believing." But they don't overlook the experimental angle. Trees on the demonstration area are counted and measured every five years and the records analyzed. So in addition to on-the-ground benefits, a sizable volume of fire damage data is being built up.

Because forest fires are spectacular, some persons get a kick out of setting them. They see no harm in it perhaps; it may be their only creative outlet and source of entertainment. But if they are made aware of the damage they are causing they might think twice before applying the match.

Did you ever have a ringside seat at a forest fire? Did you ever watch the flames creep over the forest floor, consuming small seedlings, searing the bark of larger trees? Have you heard the hiss and crackle that accompanies the cremation of leaves and twigs? Have your eyes and nostrils been stung by the acrid smoke of a woods fire?

The junior researchers experience all these things on their fire damage demonstration plot—and more. Before the half-acre is burned, the boys and girls go over it carefully, counting seedlings, measuring trees, arguing about the name of this or that plant. They know their half-acre intimately, know each tree by name, and they watch with mixed emotions as fire changes it from a healthy green to a sickly brown. Many of the tree seedlings they identified and tabulated are gone. They feel a personal loss.

Fire fighting is part of the course—the boys learn methods, how to handle equipment

Before the half-acre plot is burned, students make an inventory of all trees, including tiny seedlings. One result of this intimacy with the area is a feeling of personal loss when fire sweeps over it

For the benefit of other agencies or groups interested in developing the fire damage demonstration idea, this is how to go about it. First, an acre of woodland must be provided. Find someone who owns a suitable site and bargain with him for its use. Whatever arrangements are made, the land should be available for at least 10 years. In addition, it should be typical of local forest conditions, and it should be close enough to a main road so that people can see the demonstration. These are the important considerations. Others which may influence results are steepness of slope, thickness of leaf litter, and kind of trees.

Fire usually spreads faster on sloping land than on flat land. Hot air rises, and as it sweeps upward along a steep slope it dries fuel in the path of the flames. At the same time, it creates a draft that fans the fire to greater intensity. Leaves and debris frequently collect on the uphill side of trees and each such accumulation becomes an individual bonfire to roast the adjacent tree. If there is a choice between sloping land and flat land, the slope should be selected for the demonstration plot.

Much the same reasoning applies in connection with leaf litter. Choose a site, if possible, where there has been no recent fire, where there is a thick layer of decaying leaves on the ground. On such an area the contrast between burned and unburned portions of the demonstration will be immediate and clean-cut.

Hardwoods, because of their thinner bark, usually show fire damage to better advantage than do pines of the same size. Of course, pines are green all the year round and the contrast between unburned green foliage and burned brown foliage can be effective. But over a long period better results will be had in a plot where hardwood species are abundant.

Now for the mechanics of laying out the demonstration plot. With a hand compass and measuring tape lay off a rectangle encompassing the acre (301 feet by 148 feet is a convenient size). Mark the four corners well. Around the outside of this rectangle build a firebreak—a strip five feet wide clear of everything that will burn. A similar firebreak should divide the area in half. In the center of each of these half-acre plots lay off a quarter-acre plot (104 feet square). Inside each quarter-acre plot mark off five subplots (16 feet square). All subplots should have permanent corner markers, preferably iron pipes.

When the subplots are properly—and permanently — marked, flip a coin to see which half you will burn. Heads you burn the one on the right —tails you burn the one on the left.

Now is the time to collect data, separately for each quarter-acre plot, burned and unburned, and for each of the 10 subplots. This is a job for the students. While some are building firebreaks others can take notes. But be sure and let them switch off so each youngster gets a chance at each job. On the quarter-acre plots all

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How to Keep Dry in a Rain Forest

Flour doesn't greatly interest the Amazon *caboclo*—but he will pay well for the sack it comes in, preferring the tough-fibered Minneapolis brands which make good raincoats when coated with latex

By E. C. HIGBEE

Many a traveler departing for his first journey to the rain forest regions of the American tropics proudly totes along the latest innovations in sportsmen's impermeable luggage. His shiny new waterproofs create an expected sensation among curious natives but his own enthusiasm may expire when he observes these treasures matched, if not surpassed, in practicability by local homemade gear. A discarded flour sack, its label still faintly legible through six to ten coats of fresh rubber latex, may excel his zippered duffel bag of vulcanized fabric or rainproof duck.

I've had my own disappointments. Stubbornly I invest in some slick paraphernalia each time I prepare for a journey, only to have it soak water like a blotter after sufficient exposure to sun, rain and decay. Often I wind up dickering with some native for his small supply of crude waterproofed sacks. Little does the Minneapolis miller realize how well known is his trademark to the Amazon *caboclo* or Yucatan *chiclero* who may never have used his flour but willingly pays a day's wages to a village merchant for an empty bag of a brand he knows will wear well when heavily coated with latex.

On my first visit to Lima and the Peruvian coastal desert I learned that wise commercial outfitters of Amazon traders stock only small amounts of waterproof goods. Considering Lima's average two-inch annual rainfall, the shopkeepers expect very little demand from local stay-at-homes and they realize experienced travelers to the eastern rain forests prefer to supply themselves with pack wraps, duffels and ponchos made on the other side of the Andes.

The average European or North American knows crude rubber, if he knows it at all, in its coagulated form. Therefore he may regard Charles MacIntosh as the inventor of the rubber raincoat. In 1823 this Scottish chemist dissolved coagulated rubber in naphtha and spread it between layers of cloth for his famous mackintoshes. More than two centuries earlier, in 1615, Juan de Torquemada published in Madrid an account of rubber tapping in Mexico and described how fresh latex was used for coating the cloaks of Spaniards to make them water repellant. Unless archeologists have unearthed rubberized cloth of pre-conquest vintage, one can only surmise that this had been a practice before Columbus. I'm inclined to suspect it was and would not be surprised to learn the Indian also used powdered sulphur, just as he does today, long before the laboratory discoveries of Alexander Parkes and Charles Goodyear.

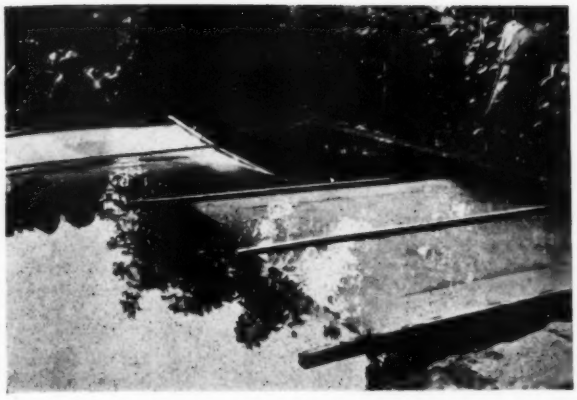
On the Pacific coast of Guatemala, rubber and sulphur lie in close proximity on the slopes of its fuming volcanoes. Sulphurous springs of *aguas amargas*, boiling from craggy depths beneath the peak of Santa Maria, still attract ailing bathers to their purge waters just as in the days of the Maya. The Indians of the volcano knew sulphur as well as they knew salt or their native cotton and castilla rubber trees.

Irineo Letona, who lives a few kilometers northeast of the Guatemalan town of Mazatenango in the village of Samayac, is a maker of rubber raincapes or *capas*. They are eight-foot squares of unbleached muslin pierced in the center by stove pipe collars and coated with a mixture of fresh rubber latex and sulphur. His *capas* wouldn't rate a fashion plate but they are superbly practical for horsemen wishing to keep themselves and saddles dry while riding through a tropical downpour. A companion piece to Señor Letona's *capa* is a rubberized hat shield designed to accommodate the peaked crown of a small sombrero.

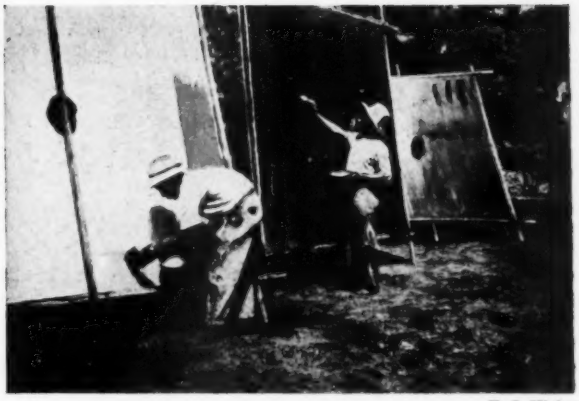
The few times I passed Letona's backyard workshop I paused to observe his maneuvers in that harbor of square sailed sheet racks. His suspicions were naturally aroused until assured I had no intention of entering into competition with him after learning the simple tricks of his trade. From a nearby producer, Letona bought latex as fresh as bottled

Green leaves are used in lieu of raincoats by this road gang in Peru with the exception of the boss, extreme right, who sports a rubber *capa*

E. C. Higbee



Frequent rinsing between coatings of latex assures a *capa* of uniform golden color that brings a good market price



E. C. Higbee

Muslin stretched taut in the sunshine is given eight coats of latex by *capa* makers at Finca Valasquez, Guatemala

milk. With him as my guide we visited his source of supply—the coffee *finca* of San Isidro. There, among various towering trees planted to shade the low coffee bushes from a blistering tropical sun, were the native castilla rubber trees, their trunks bearing calloused scars of previous tappings.

The *finca's* administrator, Roberto Kraemer, sent for an expert tapper who soon arrived carrying a heavy tapping tool—and with his shoulders draped by several short ropes, each fastened to a dangling two and a half-foot stick. Tagging along at a laggard's pace behind the master tapper was his adolescent assistant, weighted with similar ropes and a stack of substantial metal cups the size of large water tumblers. Shade in the coffee grove being too dark for clear photographs, Señor Kraemer led us into a pasture where the tapper prepared to attack a solitary tree standing in full sunlight. My guides expressed the opinion that this specimen, about two feet in diameter, was between 30 and 40 years old. They believed it capable of yielding several quarts of latex a tapping. It was customary at San Isidro to tap these large trees every three months during the rainy season between May and December.

Although I've witnessed many ingenious methods of climbing large trees, the device used by this tapper was entirely novel. At approximately head height he whipped one of the ropes around the tree and tied it to the stick to make a horizontal rung firmly lashed to the trunk. Grabbing both ends of the rung, he pulled himself from the ground with a movement which raised his body above the rung so he could stand on it. From that position he secured another rung in the same manner. This step he repeated until he was 40 or 50 feet from the ground. He then began his tapping by driving the lip of a metal cup through the bark and into the wood of the tree's trunk—hammering the cup's bottom with the handle of his heavy cutting tool. When it was wedged in securely he gashed deep diagonal channels in the bark above the cup in such a way that latex trickled into it. He then lowered himself to the rung below, inserted another cup, made the proper incisions, untied the rope above him, dropped it to the ground and continued his descent.

Tapper fastens collecting cup to Castilla rubber tree and slashes channels in bark above

E. C. Higbee

The tapper said he was expected to gather two and one-half gallons of latex daily. To obtain this he had to work five or six large trees or several more small ones. He started his task early in the morning and returned before expected rains in the afternoon to collect the cups by repeating the same climbing maneuvers. The *finca* sold the latex to Letona and other *capa* makers in the vicinity at the rate of five gallons for six dollars.

To five gallons of fresh latex Letona added a creamy mixture of one-half pound of powdered sulphur dispersed in water and strained through a piece of cloth to remove lumps. This quantity he said was sufficient to apply eight coats of rubber to five *capas*. According to his schedule, he bought his latex in the afternoon, mixed it with the sulphur and began painting with his bristle brush as soon as the sun began to shine the following morning. Almost as quickly as the latex was spread on the taut muslin it began to dry, its color changing from a creamy gray to light brown. Letona said that on occasional days when there were no showers in the afternoon he was able to apply all eight coats. Otherwise he finished his handiwork the following morning. After painting the last coat on the *capas* he doused them with water thrown on with a gourd scoop. This washing removes impurities.

The muslin sheets on which he worked were stitched together and hemmed by his wife for whom he had purchased a treadle sewing machine.

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FORESTS OF IDAHO

Idaho forestry, having made gigantic strides forward in fire and insect control, now indicates it will lead the way in a vitally needed program of state forest management and public education

By JOHN B. WOODS

Mature white pines—a portion of the million acres of forest in the State of Idaho

In the autumn of 1809, four years after Lewis and Clark first crossed the Rockies on their way west, the tireless explorer and loyal Hudson Bay Company servant, David Thompson, reached the shore of Pend'Oreille Lake opposite Mamaloose Island. This spot so appealed to him as a site for a trading post that he carved his name upon a giant ponderosa pine tree and proceeded to have several substantial cabins built nearby. Thus was established "Kullyspell House," one of the earliest white man's habitations in the Pacific Northwest and presumably the first in what is now Idaho. Unless something has happened to it in recent months the old marked pine still stands there by the lake.

It is fitting that one of the very earliest records of events in the great state of Idaho should be identified by a tree. Forests are significant throughout its north-south length of nearly 500 miles and its width of nearly 300. And they are of considerable variety, as might be expected where elevations range from 700 feet above sea level to more than two miles, and where rainfall (including snow) averages between seven and 60 inches in a year.

Idaho is shaped somewhat like a "leggy" hindquarter of beef, with the leg bone pointing due north. The northern end, commonly called the "panhandle," is only a single county wide, a matter of less than 50 miles from Washington State to Montana. Where the Bitterroot Mountains begin their southeastward sweep Idaho also begins to widen. Halfway down along the eastern boundary the line gets atop the Continental Divide and follows this a distance of possibly 250 miles until it arrives at the border of Wyoming and Yellowstone National Park. The southern part of the state is boxed in by straight lines.

Famous rivers abound in Idaho. In the far north are the Kootenai, with its fertile valley sloping toward Canada; the Pend'Oreille, Priest, Coeur d'Alene, St. Maries, St. Joe, all long associated with log driving and inland transport. The Clearwater, a bit farther south but recognized in its own right as one of the great timber streams of North America, by reason of the vast territory drained by its tributaries, flows westward out of the state at Lewiston. The Salmon, rising under the backbone of the continent, flows northward a hundred miles or more, turns west to cross

Idaho, then swings north again and finally south to join the mighty Snake. The Salmon River is regarded as the dividing line between northern and southern sections of the state.

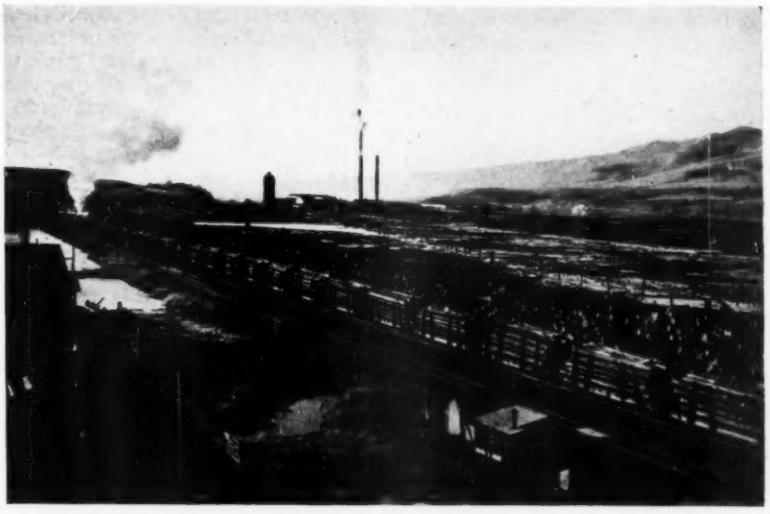
Two other short but turbulent streams deserve mention—the Payette and Boise rivers, both flowing westward and both emptying into the Snake. This last named waterway, which has its source in the Jackson Hole country of Wyoming, is most important of all. Worming its way through a mountainous and forbidding terrain, it furnishes life-giving water to most of southern Idaho's intensive agriculture. Beyond the irrigable lands it serves as a boundary line between Idaho and Oregon for a considerable distance, mostly at the bottom of an unbelievably deep canyon. Its last service to Idaho is as the common boundary with Washington for 30 miles or so above Lewiston.

Back of these streams are forested watersheds. In the north, where precipitation is heavy and much of it arrives in the form of snow, the steep slopes are clothed with dense stands of northern conifers; predominantly white pine, Douglasfir, larch, white fir, redcedar and hemlock. The forests of central Idaho are characterized by splendid groves of ponderosa pine at lower elevations, merging with larch and Douglasfir farther up and giving way to more or less pure stands of lodgepole pine and Engelmann spruce in the high mountains.

Idaho has many lofty highlands in its southern portion, and these catch the remaining burden of the moisture-bearing winds from the distant Pacific, so there are countless high-up woodlands. Some of these contain sufficient timber of merchantable quality to justify logging operations, but for the most part these southern Idaho forests are chiefly valuable as protectors of watersheds. At the same time they furnish forage for cattle and sheep and wildlife. It is apparent that the preservation of undamaged forest cover is vital to all sections of the state.

Idaho's land area is slightly less than 53 million acres, two-fifths of it or approximately 19 million acres classed as forest. Shortly before statehood was achieved, in 1890, practically all woodlands were public domain, but within a few years this picture had changed remarkably. A large forest territory was granted by the Congress to the Northern Pacific Railroad for building its line across the panhandle. The state received more than three million acres of land to support schools, a third of this being forested. And under the homestead and timber and stone laws large acreages of timber passed to private ownership.

Fourteen million board feet of white pine was piled up in this log jam on the Clearwater River. White and ponderosa pine and Douglasfir aggregate three-fifths of state-owned sawtimber



Seventy-five carloads of timber a day are required to keep this Idaho sawmill in full operation. The pond covers 310 acres with a total backwater of approximately 760 acres

At about the turn of the present century most of the remaining public domain was reserved by Uncle Sam for one purpose or another. A report published in 1927 by the University of Idaho describes the situation as of that date, there having been little change in the interval:

"There remain at present approximately one-half million acres of undisposed forested public domain within the state. Thus the original public domain within the forest belt has resolved itself into about a million acres of state forest, over four million acres private timberland, 19 million acres national forest, and one and a half million acres of other lands under federal supervision."

Even as long ago as 1927, probably little more than half of the so-called forest area was capable of producing timber stands of merchantable quality and accessibility. In the northern counties there were rocky ridges and summits too severe for tree growth, and other areas where forests were dense but could not be economically logged. Large tracts had been burned so severely that timber would not return for many years. Much of the

southern highlands supported trees in open park-like groves or denser stands of lodgepole pine and Engelmann spruce too remote to be attractive to timber operators.

As of 1927 the foresters estimated a merchantable timber stand of 81 billion board feet; 16.7 percent Idaho white pine, 20.3 percent ponderosa pine, 28.3 percent larch and Douglas-fir, and the balance inclusive of all other species. It would be interesting to have an informed guess as to how much sawtimber stood in what is now Idaho that September day in 1809 when David Thompson first saw Pend'Oreille Lake and liked it. From records at hand it appears that not less than 14.5 billion board feet of sawtimber was logged and sawed into lumber in 21 years from 1904 to 1924, while possibly one-third as much more was taken from the woods in such forms as hewn crossties, round mine timbers, poles and piling, posts, shingle bolts, pulpwood, and cordwood fuel. Unlike many states, particularly those in the East, Idaho was not the scene of widespread woodland destruction to clear land for farming, yet it was plagued by a terrible timber destroyer that took its toll year after year. Between 1907 and 1926, fire ran over 3,370,750 forested acres and killed timber estimated at more than 10 billion board feet.

Probably the volume of sawtimber present in 1809 totaled not less than 120 billion board feet, by 1927 standards of merchantability. In 1938 the U. S. Forest Service reported upon a survey of forest resources in the northern counties and warned that careful management must be given to all forests and that uses must be found for so-called inferior species if the region is to continue to yield timber in volumes and values approaching those of the previous three decades. Re-examination in 1945 disclosed that improved protection and favorable markets for wood in many forms have brought about increases in both growth and drain.

Although the northern section has been the scene of most intensive timber cutting, in connection with mining as well as for lumber production, it also presents examples of most enlightened private forest management. Southern Idaho has few large operators, and their outlook for permanent operation is not very good. This is due in part to the conditions surrounding forest ownership in a region of stringent water supply problems. It is said, as well, to be due in part to an aggressive land acquisition policy followed by the Forest Service, in which the desire to enlarge federal ownership is alleged by various critics to have been stronger than the wish to assist and stabilize large scale private forestry. A probable outcome is that ranchers will acquire much of the land relinquished by the timber operating companies.

Two national forest administrative regions share responsibility for the 13 units found within the state. Regional headquarters at Missoula, Montana, has jurisdiction over five forests north of the Salmon River, while the Ogden, Utah, regional office looks after eight southern forests. Across the span of 40 years hundreds of young foresters have been sent into these difficult areas to show their mettle. Scratch almost any Forest Service veteran deeply enough and he will show a record of service sometime, somewhere in Idaho.

Aerial photography is a vast improvement over foot and pack-train reconnaissance. Fire fighting has been greatly facilitated by radio, roads and airplanes. Through the decades forest protection has made gigantic strides forward, not only as regards fire but in the fights against insects and disease as well. Management plans of certain large operators make as much sense as do those of Uncle Sam's experts. Yet forestry really stands at the crossroads in Idaho. More timber owners must practice better forestry to stay in business. And the state, with its million wooded acres, must lead the way in both management and public education. There are clear indications that the state will do just this.

Like Washington and Oregon farther west, Idaho long ago placed the burden of paying for protection of private woodlands upon the owners of such lands. Such laws had the support of the timber people, who began to form protective associations to combat the enemy, fire. In certain areas these private groups have carried on successfully, in others the state now does the patrol work, charging the cost to landowners over the yearly tax rolls. National forests also constitute patrol districts and the federal government protects at cost state and private forests within the federal boundaries.

State laws have been modified and strengthened periodically, and today the Idaho code is quite admirable in providing for protection. The state forester also is charged with safe disposal of logging debris, and to this end is empowered to contract with landowners and timber operators for reduction of fire hazards incident to logging. Under such agreements the state wardens dispose of logging slash (by various methods according to species and hazard conditions) at rates varying from 37½ cents to 75 cents for each 1,000 feet of timber removed. Within the national forests the Forest Service attends to abatement of such hazards created by operators purchasing federal timber, and contracts too for disposal of slash with those who cut private stumpage inside national forest boundaries, at rates somewhat higher than those set by state officers.

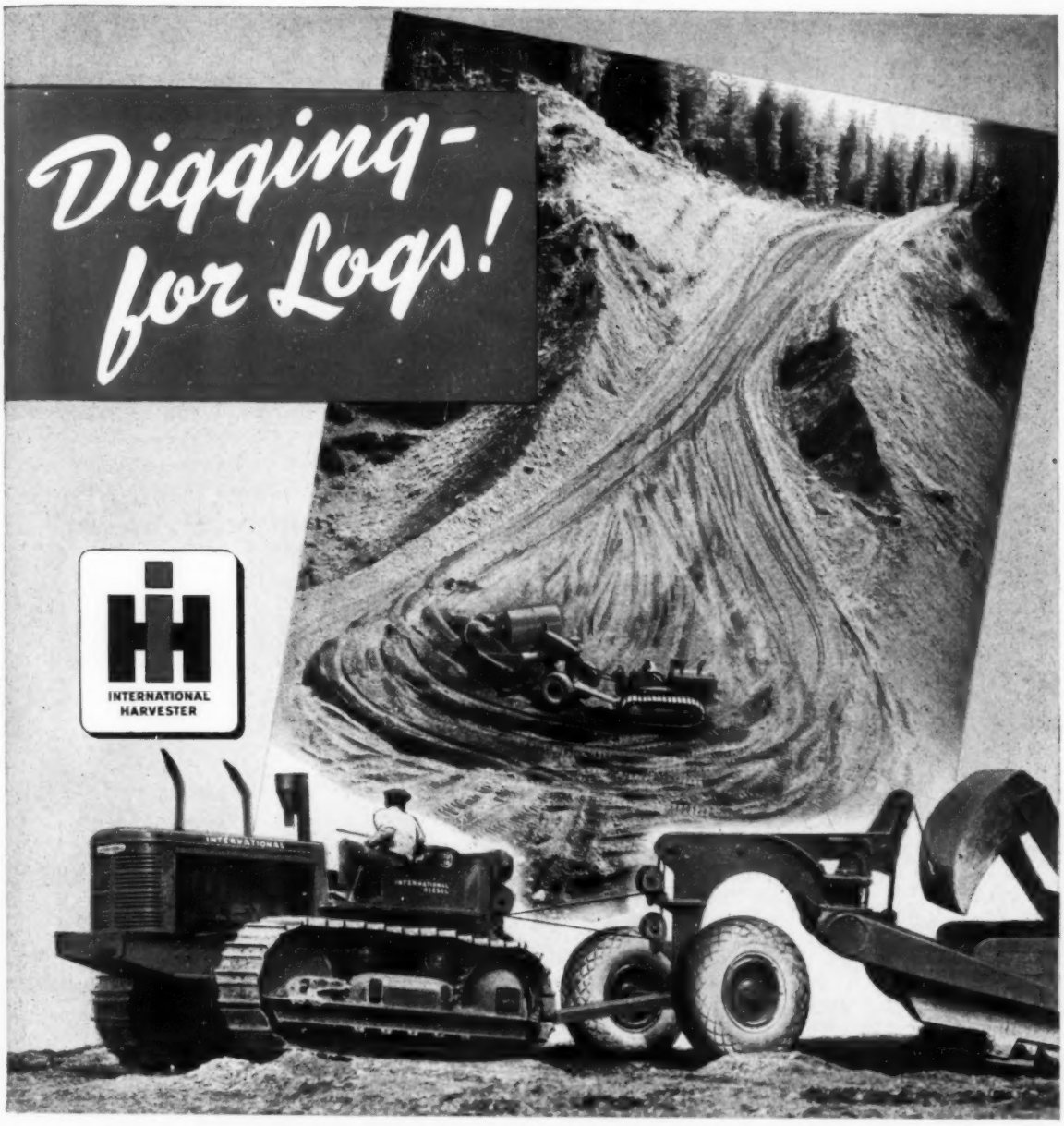
The overall forest fire prevention job is one necessitating cooperation among all interested agencies. Nearly 70 percent of Idaho land is owned by Uncle Sam; 20 million acres lie within national forest protection districts and about 13 million acres are in federal grazing districts. Systematic protection efforts are expended upon all federal land. The state and the private associations are responsible for protecting about six million acres of forest, lying in seven state districts and five association areas. As is usual in the western states, each organization maintaining patrol in an area protects all forest land therein, regardless of ownership.

Protection costs have risen in recent years, because of higher wages and supply and equipment prices. Early in 1946, federal and state experts completed a survey of fire protection needs in Idaho. According to their findings, 7,122,000 acres of forest and range land in state and private ownership can qualify under Section 2 of the Clarke-McNary Law as important forest and watershed. The cost of giving adequate protection to such an area is estimated at $506,448.

There was expended in 1946, under general supervision of the state forester for fire prevention and suppression upon state and private lands, a total of $341,107.92. Of this $131,523 was contributed by the federal government under the cooperative provision of the Clarke-McNary Act. In northern Idaho the expenditure upon an acre varied from three to 10 cents, with the average at about eight cents. In southern Idaho the outlay ranged from one cent to 3½ cents an acre, with the average near the former figure.

Federal aid in fighting fire is important, yet it is exceeded in dollars spent by Uncle Sam's contribution to combatting the attacks of forest insects and disease. As the principal habitat of western white pine, Idaho receives the benefit of large yearly allotments for control of blister rust.

(*Turn to page* 522)



Great forests of Douglas fir cover the summits of the western Cascade foothills. To bring them down, as logs, requires a lot of digging and dirt-moving . . . for rock-ballasted roads must be built to reach up into the mountains before trucks can carry a single log to the sawmill or railroad below.

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Read the roster of Tree Farm states where this program has been organized for effective action. They include Alabama, Arkansas, California, Florida, Idaho, Montana, Mississippi, New Jersey, North Carolina, Ohio, Oregon, South Carolina, Tennessee, Texas, Washington and Wisconsin. Virginia, Pennsylvania, Maryland, West Virginia, Missouri and Massachusetts are about to initiate their own Tree Farm projects, and there are more to come.

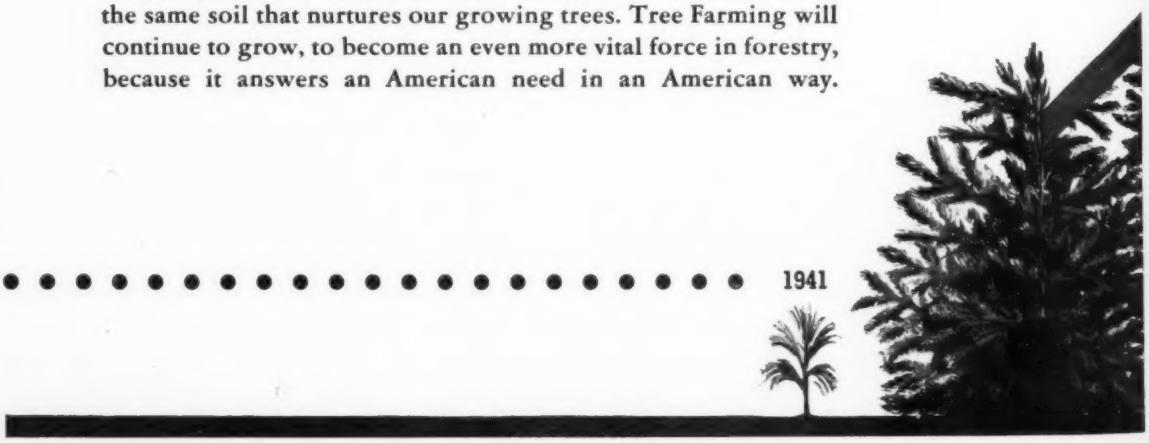
Tree Farming is moving forward with giant strides. It began as an industrial movement. Now it embraces all types of woodlands, from farm woodlots to industrial forests.

The Tree Farmer pledges himself to manage and protect his woodlands for continuous production of commercial forest harvests. But the Tree Farm movement does more than encourage better forestry. It interprets our forests to America. In simple terms, it asserts the truth that Timber is a Crop . . . a perpetual crop. It helps bring the public into cooperation with the man who grows the trees.

Tree Farming has won its place in the consciousness and planning of America because it is sound. It is practical. It is rooted in the same soil that nurtures our growing trees. Tree Farming will continue to grow, to become an even more vital force in forestry, because it answers an American need in an American way.

1942
5,276,668
Acres

1941



is growing too

● Every Tree Farm program is locally sponsored and administered. For further information about Tree Farm progress, we suggest you write the American Forest Products Industries, Inc., 1319 18th Street Northwest, Washington 6, D. C.

The Weyerhaeuser Timber Company established the first officially designated "Tree Farm" near Elma and Montesano, Washington, in the fall of 1941. Weyerhaeuser Companies are now operating eight tree farms.

1943
7,412,128
Acres

1944
9,424,298
Acres

1945
11,134,950
Acres

1946
12,922,231
Acres

1947
13,925,225
Acres

managing your WOODLANDS

A page dedicated to the management of woodlands, large and small — practical suggestions in procedure and technique and in the solution of problems on the ground.

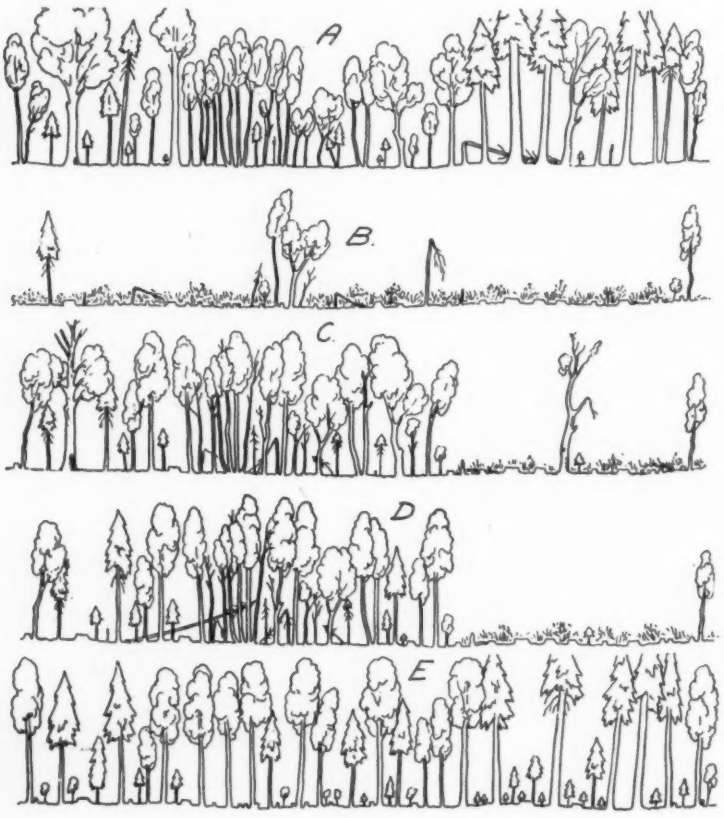
What is your problem? American Forests will assist you in finding an answer. Address queries to The Woodlands Editor.

WHAT WILL TEN YEARS BRING?

The answer is important to the owner who plans to harvest continuous crops of forest products

FACED with the problem of meeting current markets for their trees, woodland owners have a choice of several methods of cutting. If they apply to their local forester for advice and assistance he generally will recommend a method which will assure continuous crops over fairly short intervals. In rare instances, however, when the forest is composed of old overmature trees, he may suggest clear-cutting to be followed by planting.

For most small woodlands, clear-cutting is a method to be avoided. This is especially true in second-growth stands composed of trees of many ages and sizes. The logger and the owner will profit most if the trees are cut selectively with a view to future crops. Unless the landowner has an opportunity to visit other woodlands and see the results of the several methods of cutting, it is difficult for him to visualize their effects on his forest until it is too late.



In The American Forestry Association's new book, "Managing Small Woodlands," a guide to good and profitable use of forest lands, the authors have developed a series of drawings, reproduced at left, which show the results for an average woodland.

Drawing A shows a cross-section of a typical woodland—with trees varying widely in species, age, size and value. This is the type which presents a problem for most woodland owners.

Let us suppose that the owner, because of an attractive market for his timber, decides to cut it all off. Usually such an owner does not know the value of his timberland. And it is often equally true that the operator who logs off all the trees from this type of forest spends manpower and equipment on many logs which will be a financial loss to him. The results of this method of cutting are shown in Drawing B. Ten years after the cutting there are a few straggling trees surrounded by dense growth of weeds and brush through which it is almost impossible for young trees to grow. Even planting this area would be an expensive and disappointing proposition; the seedlings would have to be released from brush and weed competition several times before they began to compete successfully. It will take many years before any commercial forest is again available on this land.

Another method of cutting which the landowner might use is called "highgrading." This method often brings him high immediate returns, and the short-sighted logger and millman will also reap immediate profits at the expense of continuing returns. "Highgrading" is simply the process

(*Turn to page* 518)

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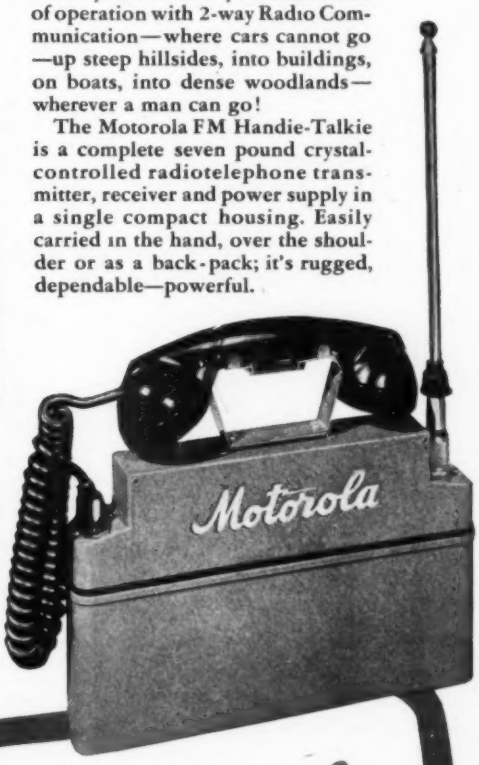

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Adventure in Solitude

(*From page* 496)

"It wasn't an old sow bear," he said, "or she'd have whaled daylight out of you."

If you ever find yourself face to face with a half ton grizzly you'll know what I mean by little dramas in the wilderness.

Lem Griffis is one of the best southern guides I know. Lem lives on the edge of the Okefenokee Swamp in southern Georgia. He knows more about the bass in Big Water Run than they know about themselves. A day with Lem in the swamp is like reading a chapter out of private wilderness lives.

Lem and I had been in Big Water Lake, fishing. Under a warm June sun and slight breeze that put a ripple on the water, our luck had been fair, and we trailed a string of four bass at the stern of the swamp boat. There was sufficient daylight to reach the landing on Jones Island a full hour ahead of sunset.

The boat slid into the run that crossed the broad prairie between Big Water and Minnie's lakes. The so-called prairies of the Okefenokee are not really prairies at all, but broad flats of floating earth, carpeted with grass, weeds and other annual vegetation. This floating earth ranges in thickness from one to three feet. The water beneath it is black and bottomless. A human can walk across it, but he is always in danger of breaking through. I've seen Lem shove a 30-foot pole completely out of sight through the muck.

"I've been reading about these prairie rats of the Okefenokee, Lem," I said. "I'd like to see one."

Lem pushed our boat to the edge of the bank. I shed my shoes and stepped out on the wafer of land.

"Carry a paddle," Lem advised, "so you can catch if you break through. And watch for snakes with those bare feet."

"I'll cross this point," I said, "and meet you in the run on the other side."

The earth gave under my weight like an inner spring mattress. I walked cautiously, watching as best I could for a glimpse of the swamp rodents. Trails criss-crossed through the heavy grass ahead of me. Once I caught a glimpse of a furry body that darted through the grass. I took a couple of quick steps forward for a better look and stopped so suddenly that I would have fallen had I not used the paddle blade to catch my weight.

Almost within striking distance was coiled a cottonmouth moccasin as large as my arm. I could see his elliptical eye pupils and the little depressions in his jaw which gave him the designation of pit viper. His triangular head was cocked at a dangerous angle.

In spite of the cold shiver that played momentarily along my backbone, I was not especially alarmed. I pushed the paddle to the front of his nose and he struck it viciously, almost knocking the wooden blade out of my hand. I retrieved it and saw where he had splattered yellow venom across the grain of the wood.

By now the moccasin had recoiled and was watching me. I turned to the right to pass and found another snake corkscrewed less than 10 feet away. My pulse jumped a notch, but still I was not too alarmed. I stood in one spot and began to look around. Within 20 feet were six reptiles!

The first I had seen was the largest, but the others would never be mistaken for night crawlers. One of the snakes had slid around behind me and was stretched across the trail I had made through the grass.

I became aware that I was slowly sinking where I stood. It might be a matter of minutes before I broke through the morass and found myself helpless on this field of death. The cottonmouth, Lem had told me, was the only snake he knew that would attack a man without provocation.

I stepped out of the water that was around my ankles into the dry grass on a return trip to the point of marsh where Lem had let me out of the boat. The snake in my path drew its body into a spiral. I stuck the paddle under his nose and he hit it a smashing wallop. I let him hit it again, and then again. On the third strike I thrust the paddle under his yellow belly and flipped him 10 feet away into the grass. It was like throwing a length of trace chain. Then I got out of there in a hurry.

Lem picked me up at the point of debarkation, and grinned as I wiped the sweat off my face. He had seen the whole show.

"Them snakes," he said, "was there for the same reason you was—looking for rats."

Most of those little dramas I have seen in the woods were play-acted by the birds and animals themselves. The comedies, the tragedies, the animal interest incidents, are as much a part of the woods as the trees and streams. They make up a living, breathing story of the wilderness.

I stood in one of those cultivated spots of the South where feed is planted to attract doves. It was midmorning and only a few birds were flying. Jim, standing beside me, caught my arm.

"Look how funny that dove is flying."

At the far edge of the field a dove was cutting the air lanes with sharp strokes, coming directly toward us.

Suddenly I realized that the bird was not a dove, but a cooper's hawk. Four feet, or even less, in front of him there *was* a dove, flying with every ounce of power in his pointed grey wings. He was zipping right and left, to throw the blue darter off his trail, but the hawk followed every movement with flashing pinions.

Too late I threw up my arm to stop Jim's shot. I wanted to see the end of that race; I wanted to know what trick the dove would pull when he reached the pines. The edge of Jim's pattern clipped out a couple of feathers from the tail of the hawk and the startled bird zoomed up and out of range. I looked for the dove but he was gone.

Years ago I learned that birds and animals, and other creatures of the woods have personalities, just as humans do. Some individuals of a species are vicious, others gentle. Some are cunning, others dumb. The smart ones survive.

In one of the remote sections of the West I once had a big cougar trail me for a mile through the woods. I was unarmed. For a while I was worried. Twice I caught glimpses of him several hundred yards away through the trees. I spent a miserable half hour climbing to my camp, where I threw shells into my carbine and went back to meet him. I never saw him again. I am sure he followed out of curiosity, not with evil intent.

But those are the moments in the woods you never forget. You never know when or where you'll find them or what you'll do under the stress of the moment. To me they make the wilderness more interesting than any other single feature. Ask some woodsman or naturalist you know and see what kind of an answer you receive.

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Public Lands Committee Makes Sudden Report

The subcommittee of the House Public Lands Committee, headed by Representative Frank A. Barrett of Wyoming, which has been investigating the grazing policy of the U. S. Forest Service, broke off its hearings in the western states in mid-October to submit a series of recommendations to the Secretary of Agriculture. This action came with dramatic suddenness on the heels of widespread criticism of the manner in which the hearings were being conducted (see page 436 of October issue). The committee was scheduled to move into the Southwest late this month, concluding hearings at Phoenix, Arizona, November 1. These plans have been abandoned.

In its unexpected report to the Secretary of Agriculture, the committee called for the retention of existing numbers of cattle and sheep on western national forest ranges for a three-year "test" period. This action is necessary, it stated, to give forest officials and livestockmen time to determine the carrying capacity of individual ranges and to learn whether or not they are improving under present usage. Forest Service testimony at the committee's hearings indicated that its proposed reductions in numbers of livestock were based on studies of the range carrying capacity and on the conclusions that ranges to be affected are not improving. The committee's action in making its recommendation indicates that the stockmen's testimony to the contrary has borne considerable weight.

Early this year, Secretary Anderson agreed to postpone final determination of 1948 range adjustments in order to give the committee an opportunity to investigate complaints of western stockmen. The committee's recommendations, if followed by the secretary, will cancel out all proposed reductions in permitted numbers of livestock on national forest ranges.

In making its recommendation, the committee pointed to the "unrelenting and in many cases the rather drastic reductions made in permits up to and including this year," and to the "admitted difficulty of determining with any degree of certainty that these cuts are not more than sufficient to attain the desired objective." The committee further pointed to the feeling among stockmen that "the range is decidedly on the upgrade." The adoption of this recommendation is imperative, it said, because of the continued scarcity of beef for domestic consumption and world supply requirements.

Another committee recommendation calls upon the Forest Service to give more positive and affirmative encouragement to users in the improvement of national forest ranges, including water development, fencing, reseeding, rodent and weed control and soil and water conservation practices.

It also recommended a system of impartial appeal boards designed to represent fully the interests of the general public as well as the permittees and the Forest Service insofar as grazing and livestock operations are concerned.

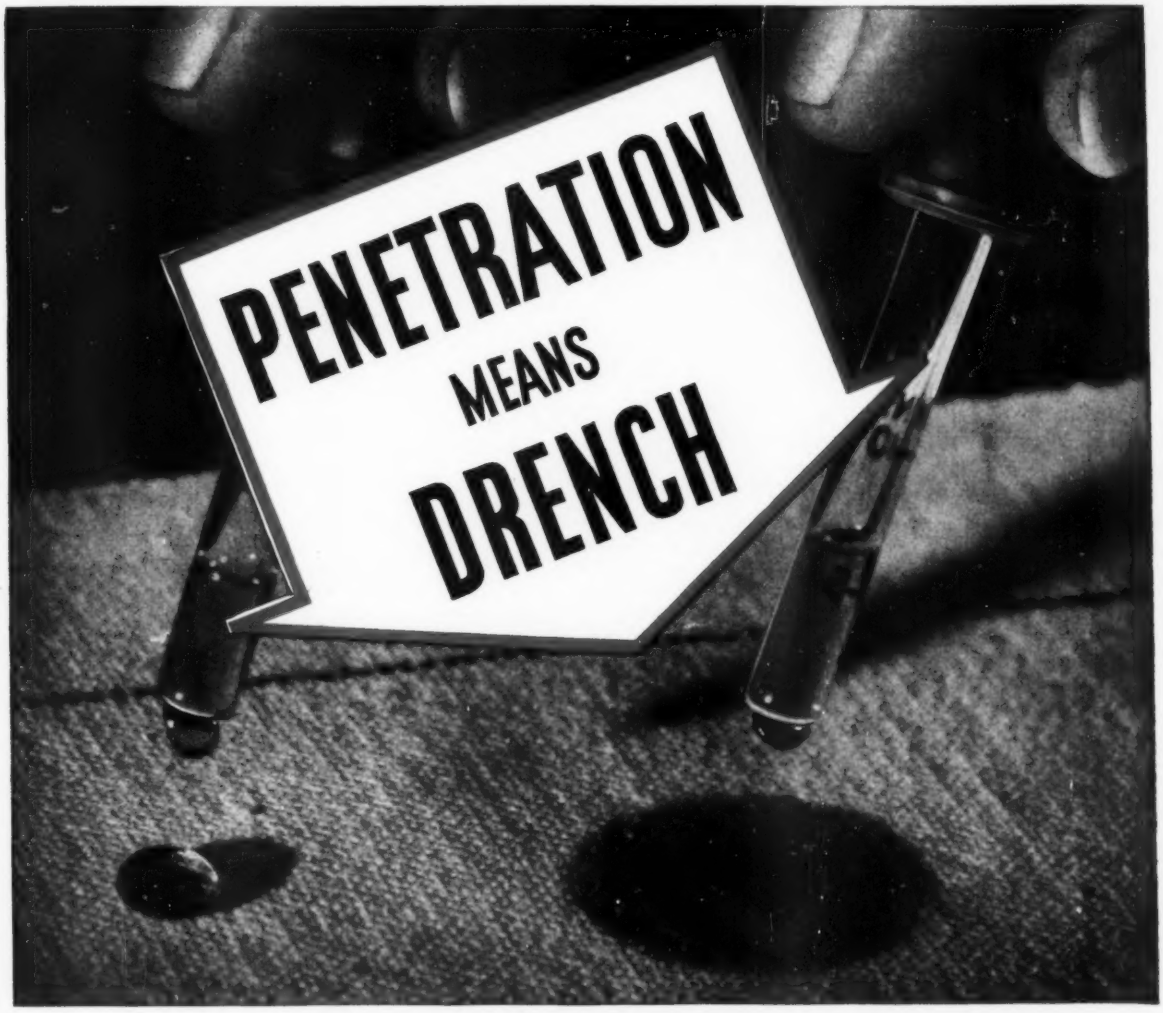
And the Forest Service is requested to put into writing all conditions required of or imposed upon permittees, along with agreements or promises made to them by forest officials in connection with grazing permits. This is declared necessary in order that the validity of such statements may be recognized by successive officials in their dealing with range users.

The Department of Agriculture is asked to inaugurate and make effective a policy under which permittees, in matters affecting their preferences and permits, shall upon request be entitled to a record hearing at which they may be represented by counsel.

The final recommendation reads, "In all cases involving a reduction in permitted numbers (of livestock), consideration shall be given to the economic conditions affecting the permittee's livestock operations and to the practical effect of proposed reductions upon, not only the permittee, but upon the local community and its tax structure. Further, the opinions of experienced and practical stockmen and community leaders concerned shall be given due consideration."

The committee expressed the belief that much of the existing trouble on the range stems from the Forest Act of 1897 which, as it stands, makes no provision for grazing as a basic use of national forest lands and fails to prescribe general policies for the administration of grazing as a function of the Forest Service. The cooperation of the Department of Agriculture is asked in the preparation of a proposed amendment to the act for the purpose of clarifying the issue.

The committee opened its investigation in the West at Glasgow, Montana, on August 27.



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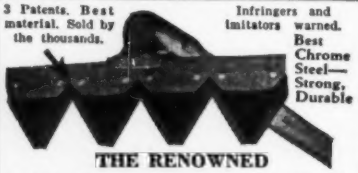

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A. G. Hall Named Association Forester

The Board of Directors of The American Forestry Association, meeting in Washington on September 23, re-established the association's Forester's Office, suspended during the war period following the resignation of G. H. Collingwood, and named A. G. Hall, associate editor of AMERICAN FORESTS and director of information since 1945, to the position of association forester.

As forester, Mr. Hall will direct the association's educational, informational and legislative programs. He will continue to serve as associate editor of AMERICAN FORESTS.

Born in Scranton, Pennsylvania, in 1911, Mr. Hall attended public schools in Philadelphia and, in 1933, graduated from the forestry school at Pennsylvania State College. Following a short term with the U. S. Forest Service in California, and state forestry work in New Jersey, he was appointed assistant forester in the Division of Research and Information of the Pennsylvania Department of Forests and Waters, where he developed popular bulletins based on the research work and other forestry activities in the state.

In 1935, the U. S. Forest Service brought Mr. Hall to Washington, D. C., to prepare educational material for use by Civilian Conservation Corps staff workers and enrollees and he co-authored the widely-used textbook "CCC Forestry." During this period Mr. Hall traveled extensively over the country—an experience that gave him first-hand information of the overall forestry picture in the United States. Later, as training officer of the eastern region staff of the Forest Service, he covered the region's thirteen states in developing training programs that emphasized forest fire prevention, detection and control.

Early in 1943 he was assigned to the War Production Board as a forest economist and aided in the development of broad programs of lumber production and distribution to meet war and essential civilian needs for

A. G. Hall

lumber and lumber products—and in the interpretation of these programs to the logging and lumber manufacturing industries. He also served as vice-chairman of the wartime forest products production drive programs.

In the spring of 1945, before he joined the staff of The American Forestry Association, he was named assistant chief of WPB's program branch of the lumber and lumber products division.

He is a senior member of the Society of American Foresters.

What Will Ten Years Bring?

(*From page* 512)

of removing the best trees. Drawing C shows the results of this method, after a 10-year lapse. On the right, where the cut was very heavy, the results are about the same as those of a clear-cutting. In the middle, where the poorer trees were crowded, and to the left, the increased growth of some trees is offset by the deterioration of the others. There is very little chance for another profitable harvest in this stand during the owner's lifetime.

A popular method of cutting is to use a diameter limit as a guide. That is, the owner and operator will decide to harvest all trees with a diameter greater than say, 10 inches. This method also yields high immediate profits, since only the large trees with a high board-foot content are removed. The theory behind the method is that the small trees left in the forest will put on additional growth for the next harvest. The owner often overlooks the fact that some of his large trees are still putting on good growth of clear wood year after year and that if permitted to continue such growth will eventually be even more valuable in a future cutting. He also overlooks the crowded smaller growth —patches in which no trees are growing at their best rates because of too

intense competition. Drawing D shows the results of this type of cutting in the average woodland.

Now let us assume that the owner, properly advised by his local forester, decides to utilize his timberland as an investment. He looks at his trees as capital, earning interest each year. Those which are earning a good rate of interest through increased growth of sound clear wood each year are retained in the stand. Those which for reason of age have reduced the rate at which they are putting on good growth are marked for removal. And the young trees which are not earning as much interest as they should are released from competition so that their growth rates may increase. In other words, the trees to be cut under a selective method are chosen with a view both to markets and to present and future earning power.

Drawing E shows the stand 10 years after a selective cut of the type described above. A number of the best mature trees have been harvested, but along with them some of the poor, crooked, or crowded trees were cut for fuel and pulpwood, so that the remaining trees were sound and well-spaced. These put on good growth, are well-shaped and some of them are now ready for another harvesting operation. Where small openings had been made, a good young growth is coming up—the trees for more crops in the future.

"Managing Small Woodlands" points to eight simple rules for selective cutting: (1) Cut good trees when they reach maturity. (2) Leave immature, healthy, well-shaped, reasonably fast-growing trees of good species to grow. (3) Cut trees of inferior species and deformed, defective dying and dead trees, at least to the extent to which they can be used. (4) Cut heaviest where the trees are too crowded and least or not at all where they are scattered; avoid making large openings in the forest. (5) Consider the needs of the young growth. (6) Where immature trees grow too close together, give preference to sound trees of better species, shape, size and faster growth. (7) Cut early the trees that have poor prospects of use for various forest products; let the best trees grow to large size, as long as they remain sound and are fast-growing. (8) Very light cuts at intervals of several years apart are better than heavy cuts at longer periods.

By following these simple rules most woodland owners can keep their forests producing income.

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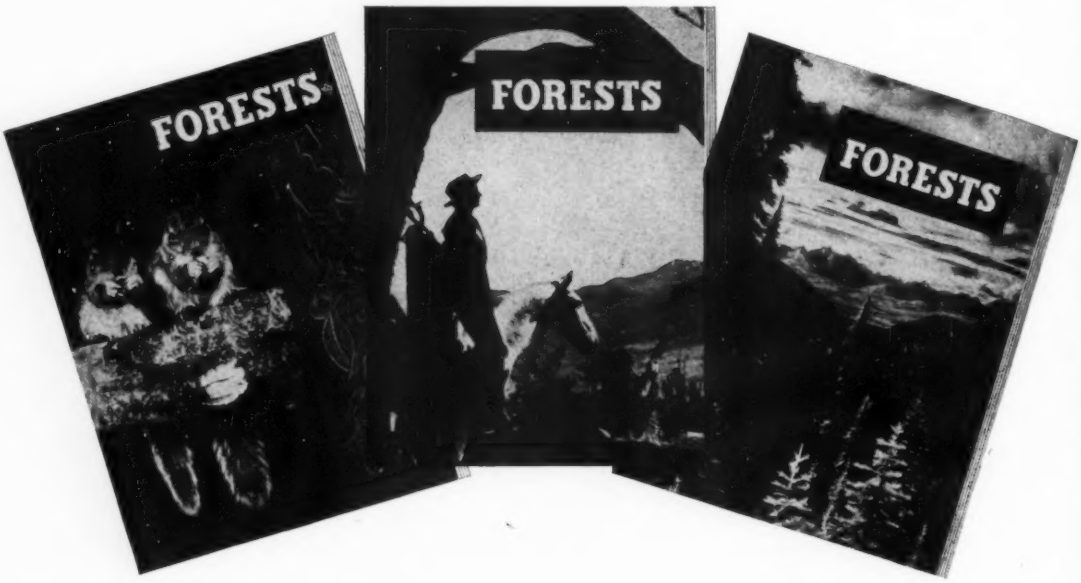

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Forest Exchange

(*From page* 484)

able and growth greatly increased. Also it is possible that with more know-how and a better price for the wood this may prove cash-producing in time.

From our native stands we have taken hemlock lumber. This now sells for $90 a thousand board feet "when you can get it" on the legitimate market. We cut and had milled 17,000 board feet of this at about half the quoted price for use in a building we are erecting on one of our parks. From the same stands we have taken a small quantity of beech and maple lumber.

Another product is piling for construction of boat slips in the harbor on Onondaga Lake Park.

And last but not least is firewood, of which the greater quantity is sold to visitors at the parks for cooking, or is used in heating our smaller buildings.

Our forest is also used for recreation purposes and has the usual game refuge and soil conservation values. In addition, it is a source of work for relief labor.

Our operations are small to date, but under proper direction can become more extensive and more profitable. Present policy in this county calls for a gradual increase in forest holdings as sub-marginal land becomes abandoned and tax delinquent.

None of the above material is intended to detract from the generalizations used by Mr. Kernan, and which are undoubtedly true, but rather to show that a beginning, at the county level, has been made in getting more than Christmas trees from our forest lands.—*J. H. Manross*, Syracuse, N. Y.

Trees of Friendship

(*From page* 501)

conference table instead of on the field of battle.

With those who had assisted him concurring that the trees should be a permanent token of good wishes to the United Nations, the first tree—a Sitka spruce from Alaska—was planted in May in a ceremony that attracted thousands of people.

Looking back on the amazing results of his appeal for trees to the nations of the world, Buether has this to say: "It all goes to show that deep in the heart of humanity is a yearning for everlasting peace. These trees symbolize that desire."

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Forests of Idaho

(*From page* 508)

In 1946 the amount was $224,000 to which was added $15,000 of state funds and an equal contribution from landowners. This sufficed to eradicate ribes on 26,000 acres.

It is a tremendous task; an idea of its magnitude can be gained from these facts. The state owns 348 thousand acres of forest in the blister rust control zone, of which 235 thousand acres have been initially worked and 75 thousand acres reworked. In the control area private lands approximate 768 thousand acres, of which 419 thousand acres have been worked once and 132 thousand acres reworked to eliminate currant and gooseberry plants. Yet only by such means can there be assurance that the valuable white pine will persist in commercial quantities.

Insect control is becoming equally important, and here again Uncle Sam has stepped into the breach to aid the state and private owners. As this story is being written, an outbreak of Douglasfir tussock moth is being fought with airplanes and DDT. This is a cooperative effort of the state and the Forest Service, carried out with $210,000 appropriated by the 1946 legislature, plus some $400,000 of federal appropriations and considerable private contributions.

The state has nearly a million acres of woodlands remaining from its grants. Probably four-fifths of the forest area is capable of yielding continuous crops of commercial timber. This property, together with nearly two million acres of range and farm lands, is administered by a State Land Board, composed of five elective state officers, with their appointee, the state land commissioner as secretary. These officers are: governor, secretary of state, attorney general, state auditor, and as might be expected in view of the fact that most of these holdings are school grant lands, the state superintendent of public instruction. The work is carried on by a small staff under the immediate direction of the land commissioner.

The record of the agency's land activities since 1890 makes interesting reading. Besides the grant of all sections 16 and 36 for public school purposes (2,982,683 acres), there were five other grants to support education, amounting to 386,080 acres, and four to establish and maintain other necessary state institutions (282,000 acres), including erection of public buildings.

For several years the land department was very busy selecting lands to take the place of sections 16 and 36 already taken up by settlers, and for other grants. In the absence of adequate records and even of surveys by the federal government, the state board had surveys made and records kept by the land department. Instead of continuing to accept chiefly barren and presumably worthless areas the board soon began to choose lands which appeared to have real promise of future value. Thus were acquired large agricultural and timbered acreages.

Land sales began in the early 1890's, with great promise, but hard times came along and for several years there was little activity. When matters finally improved it became apparent that there was opportunity to lease lands for various purposes. Before long the State Board of Land Commissioners, as it was called for many years, was leasing grazing and tillage areas, selling rights of way and timber as well as farmland. By June 30, 1946, 949,367 acres had been sold, for a sum in excess of $15,495,788 which money has gone into various state endowment funds. Leases in effect in 1946 included 114,950 acres of farmland, 2,046,863 acres of grazing areas, 1,184 acres of cottage sites in vacation areas, and 10,168 acres of mining operations. Rentals received during the biennium totaled $432,953. Income from land sales for the same period was $1,157,756.

For many years timber had been sold with the land upon which it stood. By 1940 such sales had disposed of 393,333 acres of forest and had brought in no less than $7,123,511. Gradually there had been increased understanding of the value to the state of its woodlands. Protection of private timber from fire and other enemies had necessitated organization of a state forestry department (1925), and such a move was given added significance and support by the need of similar protection for state holdings. Eventually forestry was set up on its own foundations and accorded a controlling board, composed of elected officers on the land board, plus the state land commissioner, commissioner of reclamation, the dean of the School of Forestry, representatives (two) of private forest protective associations and of the livestock industry, and two (nonvoting) members of the U. S. Forest Service.

Since June 30, 1940, timber has

been sold separately from the land, and is scaled as cut except where state tracts are small and so intermingled with private holdings as to present an impracticable scaling task. Increasingly the state forester is called upon to assist in administering such sales. It is reasonable to hope that before long the forestry phase of state land administration will follow high technical standards of sustained yield of timber. A fine start has been made.

What is this timber property? According to studies conducted by the Forest Service, the commercial state forest area aggregates 821 thousand acres, of which 499 thousand acres bear merchantable sawtimber. Growth of pole-timber size characterizes 124 thousand acres; as much more is stocked with seedlings and saplings, and nearly 70 thousand acres is newly cutover or barren because of repeated fires.

The state owned sawtimber volume is estimated at 7,365,000,000 board feet. It is believed that slightly more than one-fifth of the stand is white pine, another fifth is ponderosa pine and another fifth Douglasfir, with other conifers making up the remainder, except for small volumes of a few negligible hardwoods. Counties and cities own 104 thousand acres of woodland, upon which there is believed to be at least 356 million board feet of sawtimber.

The federal government has 32,821,000,000 board feet of sawtimber upon 6,436,000 acres of commercial forest, more than nine-tenths of it in national forests. Half the area is stocked with sawtimber, a fifth bears pole-size growth, a bit more than a fifth has younger stuff standing upon it and ten percent is poorly stocked or barren, or freshly cutover.

Private timber owners have one-third of commercial sawtimber in the state, 20,254,000,000 board feet, standing upon 2,788,000 acres of land. Industrial and other large owners have 17,711,000,000 board feet, while farmers own 2,543,000,000 board feet. The formers' sawtimber acreage adds up to 977,000, while farm woodlands contain 155,000 acres of sawtimber. Pole-size timber aggregates 347,000 acres for the industrial owners and 454,000 acres for the farmers. Young growth is present upon 385,000 acres of industrial and 147,000 acres of farm woodland, while 238,000 acres of the timbermen's property is freshly cutover or badly burned and 85,000 farm acres are in similar unproductive state.

A total sawtimber stand in Idaho

(*Turn to page* 525)

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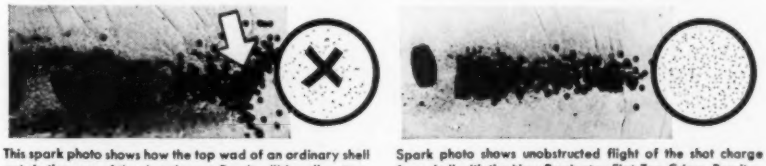

This spark photo shows how the top wad of an ordinary shell gets in the way of the shot charge. Result—"blown" pattern (in circle).

Spark photo shows unobstructed flight of the shot charge from shell with the New Remington Flat-Top Crimp. Result—perfect pattern (in circle).

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THE 4 FORESTS AND THE FUTURE OF THE SOUTH, by I. F. Eldredge. Published by The Charles Lathrop Pack Forestry Foundation, Washington, D. C. 65 pages, illus. Price, $1.00.

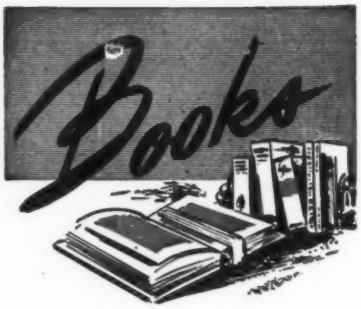
The author, who has spent many years in the southern forests in both federal and private forestry work, has been aptly described as "the man who knows most about the timber supply of the South." The four forests are: the naval stores belt, the upcountry forest of Georgia, Alabama and Mississippi, the Mississippi River bottomlands and the trans-Mississippi forest. Eldredge explains how these forests are used, their ownership, the progress of forestry in them, and the responsibility of government and the opportunity of private enterprise. "I don't for a moment doubt that we are over the hump as far as the initiation of forestry in the Deep South is concerned," the author sums up the booklet, "but that is not to say that all is well and safe—far from it . . . but the idea and practice (of forestry) is spreading and developing fast, as the economic climate becomes increasingly favorable."

SCIENCE AND SCIENTISTS IN THE NETHERLANDS INDIES, edited by Pieter Honig and Frans Verdoorn. Published by the Board for the Netherlands Indies, Surinam and Curacao. New York City. 491 pages, illus. Price $4.00.

This is as near a complete history of science in the Netherlands Indies as can be found anywhere. The editors have brought together a wealth of original articles and reprints dealing with the development or status of various scientific branches, travel accounts and impressions by distinguished scientists and other visitors, lists of scientific institutions, societies and workers.

A MANUAL OF SOUTHWESTERN DESERT TREES AND SHRUBS, by Lyman Benson and Robert A. Darrow. Published by the University of Arizona, Tucson, Arizona. 411 pages, illus. Price $3.00.

This work continues a series on the flora of Arizona and the Southwest, the first publication in the group being *The Cacti of Arizona.* It constitutes a semi-popular or semi-technical manual for identification of trees and shrubs growing in the southwestern deserts. The book is well illustrated with color plates, black and white photographs, line drawings and range maps.



UPSTREAM AND DOWN, by Howard T. Walden II. Published by The Macmillan Company, New York City. 367 pages, illus. Price $3.00.

This book is a distillation of the ideas of the author over a period of 30 seasons of trout fishing. Formerly published only as a limited edition, the series of essays on the art and philosophy of trout fishing should have a place in the libraries and reading schedules of all who love to cast a fly. It is especially recommended to kindle the spark of fishing in those who have yet to learn the sport of matching wits with a game fish.

THE CHEMICAL COMPOSITION OF FOODS (Second Revised Edition), by R. A. McCance and E. M. Widdowson. Published by the Chemical Publishing Company, Inc., 26 Court Street, Brooklyn, N. Y. 156 pages. Price $3.75.

The scientific analysis of the chemical composition of foods seldom rewards the research specialist with the startling and interesting developments characteristic of some branches of research, but at the close of the war a great need existed for such studies in view of the serious nutritional problems arising from want and scarcity. Aware that a knowledge of foods is the first essential in the dietary treatment of disease or in any quantitative study of human nutrition, the co-authors prepared this volume primarily for use in Great Britain, but the fact that many American dishes correspond to those of England makes it of value in the United States as well.

In this volume, over 541 varieties of food are analyzed and the book supplies data in the form of tables, two sets of which are included: the first lists composition per 100 grams; the second tabulates composition per ounce. Constituents listed include water, sugar, starch and dextrins, total nitrogen, protein, fat, available carbohydrates, and calories.

The publications listed below must be ordered direct from the addresses as given and not through the Association.

Flora of Grandfather Mountain, by Harlan P. Kelsey. Published by the National Parks Association, 1214 16th Street, N. W., Washington 6, D. C.

Calculating the Growth of Ponderosa Pine Forests, by Philip A. Briegieb. Pac. N.W. For. Expt. Sta., 423 U. S. Court House, Portland 5, Ore.

The Mahogany Book, by George N. Lamb. Published by the Mahogany Association, Inc., 75 East Wacker Drive, Chicago 1, Ill.

The Yale Forest in Tolland and Windham Counties, Connecticut. By Walter H. Meyer and Basil A. Plusnin. Published by the Yale University School of Forestry, New Haven, Conn. Price $1.00.

Annual Report of the State Forester. State Forestry Department, Dover, Delaware.

The A B C's of Public Relations for Recreation. Published by National Recreation Association, 315 Fourth Ave., New York 10, N. Y. Price 85 cents.

Use and Abuse of Wood in House Construction, by R. P. A. Johnson and E. M. Davis. Misc. Pub. 358, For. Serv., U.S.D.A. Supt. of Docs., Wash., D. C. Price 10 cents.

New York State Ranger School, Wanakena — Announcement of courses. Published by The New York State College of Forestry at Syracuse University, Syracuse 10, N. Y.

Report of the State Commission of Forestry, by Charles H. Flory, State Forester. State Commission of Forestry, Columbia, S. C.

Resin Adhesives and the New Plywood Program, by Thomas D. Perry. Chemurgic Reprint Series No. 4, and *Babacu—The Wonder Tree.* Chemurgic Reprint Series No. 5, reprinted from The Chemurgic Digest, Phila., Pa. Price 25 cents each.

Overstocking Trout Streams and *Research In Stream Management in the Pisgah National Forest,* by Thomas K. Chamberlain, U. S. Dept. of the Int., Fish and Wildlife Service. Reprinted from Transactions of the Eighth North American Wildlife Conference, 1943. American Wildlife Institute, Investment Bldg., Washington, D. C.

Canker Stain of Planetrees, by James M. Walter. Circ. No. 742, U. S. Dept. Agr. Supt. of Docs., Wash., D. C. Price 5 cents.

Forests of Idaho

(*From page* 523)

of 60,796,000,000 board feet is predominantly three species: Douglasfir (12,962,000,000 feet), white pine (11,523,000,000), and ponderosa pine (11,199,000,000). True firs aggregate 8,103,000,000 feet; western larch amounts to 6,072,000,000 feet; Engelmann spruce is 3,821,000,000 feet, while all others, including a small volume of cottonwood and aspen, add up to 7,084,000,000 board feet. Probably five-eighths of the merchantable volume is found north of the Salmon River.

Clearly the forests of Idaho call for careful management to overcome the effects of four decades of intensive cutting and of fires and other enemies. Selection of white and ponderosa pine in preference to other species has reduced the supplies of these valuable woods to dangerously low levels. Annual yields of timber in excess of a billion board feet, such as are now usual, require increasing reliance upon the more plentiful "higher up" species. At the same time every effort must be directed at securing prompt regeneration and rapid growth of new timber on logged-over lands. Fortunately it is the custom over much of the forest to select trees for the harvest, leaving considerable residual stands.

Farmers, owning 841 thousand acres of woodland, are in need of guidance in its proper management, particularly in southern Idaho, where too often the rancher is tempted to remove trees from hillsides to make more grazing at the expense of watershed values and wood supply. The state forester asked for funds to put six farm foresters to work in 1947, but was provided with only two, and these two are expected to work for the next year upon state lands, where they will be of little assistance to farmers or ranchers. An extension forester at Moscow (State University) has worked among farm woodland owners in northern counties, with excellent results. However, in this state as in most others, the need for landowner education and assistance far exceeds the facilities for such work.

The forests of Idaho possess notable recreational values, particularly as regards scenery and varied wildlife. It is also a great agricultural community. Such considerations justify a strong popular demand for good care of forests, even at the expense of wood production. Fortunately, there is timberland enough to provide for all such demands, if it is properly cared for.

How to Keep Dry

(*From page* 505)

There are many *capa* makers in that part of Guatemala and all of them use approximately the same techniques as Letona. Some of the finest quality are bathed in tanks of running water while still on their stretchers and after only two or three coats of latex have been applied. Afterward they are dried and a few more coats painted on before further tank washing and additional applications of latex. This frequent rinsing assures a uniform golden color.

For the poor who cannot afford a *capa* to protect themselves from the rains, nature has provided the broad leaves of such tropical plants as bananas, plantains and taros which can be draped over their shoulders and backs as a substitute. No traveler along a frequented trail on a drizzly afternoon will fail to encounter these beetle-backed humans trudging like giant *coleoptera* through the showers beneath their crisp green and glistening shells.

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Other Side of Forestry

(*From page* 494)

pre-logging, thinning, selective harvesting as in the case of highgrading of decaying trees or stands ahead of prime harvest, and pruning—are in the future and will depend on simple economics. Can they pay their way? The extent to which advanced forestry will be practiced on private timberlands will be in direct ratio to the ability of the industry to market the products which will come from complete utilization of all wood material in the forests.

Right now major concern is with an activity which holds greatest promise—re-logging or closer logging to reduce waste in the forests. This means marketing of low-grade lumber. And for the first time industry management is talking about merchandising, which is a healthy sign. It means that an effort will be made to lick public "lack of interest" in utility grades of lumber.

Looking east from the other side of the Rocky Mountains, West Coasters have come to this conclusion: if complete, intensified forest management is to remain part of our economic life, conservation must begin with the consumer.

Timber Homestead

(*From page* 491)

in—and with them the return of the dark ages of American public land policy. If you need a refresher course on this, check back on the old Timber and Stone Act which resulted in so much abuse and fraud in western United States that it was repealed.

In the hands of speculators, if experience through the years means anything, you can kiss Alaska's commercial timber stands good-bye. The territory's $60,000,000-a-year salmon pack industry would be endangered. At least half the take comes from southeastern Alaska, where fish are spawned in streams of the Tongass forest. In fact, most of the spawning beds lie well down toward the outlets of streams, in the heavily timbered areas, subject to all the hazards of settlement and uncontrolled logging.

And what about Alaska's valuable scenic resource? The fiords of the Inland Passage will ultimately attract millions of summer tourists. Much of the beauty and charm of this region is due to the timbered hillsides which rise steeply from the winding channels. Uncontrolled logging operations which stripped the timber from these hillsides would produce unsightly scars, thereby destroying much of the present attraction. H. R. 4059, if enacted into law, would create a situation in which the continued control of logging in the interests of preserving the scenic values would be well nigh impossible.

None of these threats, however, as great as they are, can match the danger inherent in the Lemke bill to established public land policy. If we wreck the national forests of Alaska for the questionable benefit of several thousand veterans, and unquestionable profit of timber speculators, we open the door to even greater, and graver, assaults on public resources. The public lands (which means your land) are already under attack in the West. The Lemke bill, if passed, could well turn the tide in favor of self interest.

Let's give the veterans—all veterans, not a selected few—the benefits due them. But not at the price of dissipating our already dwindling natural resources. The veterans themselves will not sanction this when they have the facts. Let's enlist their aid in beating the Lemke bill!

Learning by Burning

(*From page* 503)

trees two inches or more in diameter should be measured and recorded by one-inch diameter classes and species. Tree diameters are measured four and one-half feet above the ground with a diameter tape. If any of the trees have old fire scars, they should be listed in a separate column.

On the subplots (the 16-foot squares) simply count by species every young tree less than two inches in diameter. And that means *every* tree. Seedlings no more than several inches high will be found. These must be counted too.

This stock-taking may be repeated every year, or every five years. Differences in growth rate would be slight in a year's time, but there would be changes in the number of young trees.

Plan on burning during the normal

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fire season. If most fires occur in the spring, burn then. If the fall fire season is normally the worst, that's the time to burn. Pick a day when fire will burn in the woods, not when burning will be spotty. The local forester will be the best judge of burning time. And be sure there is plenty of help to keep the blaze under control. Nothing will defeat the purpose of the demonstration more surely or more quickly than to have the fire get away. After the initial burning repeat the process every year at about the same time.

Just one more word of caution. Keep the firebreaks around the unburned half-acre clear of inflammable material. If this isn't done, fire may come in from the outside and wreck the demonstration. Make regular inspections, particularly in the fall and spring.

Quite a number of vocational agriculture teachers in Tennessee Valley high schools are using the fire damage demonstration as an aid in teaching forest conservation. 4-H Clubs in Alabama and Georgia have fire damage plots close to their summer camps. Camp directors use them each year to put across the fire damage idea.

In Tishomingo County, Mississippi, Ranger M. E. Hill has combined the fire damage plot with reforestation as a school project. Several elementary schools are planting two to three acres of loblolly pine. When these miniature school forests are well established, a small portion of each will be burned to provide an object lesson in forest conservation.

Officials of the Hassell and Hughes Lumber Company, which recently adopted an operating plan that assures a sustained timber yield, have set up a fire damage demonstration in the center of their 75,000-acre holdings in Wayne County, Tennessee. Ralph Hughes, the company's president, learned the value of fire control the hard way. Right now he is forced to log 40 million feet of low-grade timber chiefly because of fires in the past. Not long ago he bought 2,000 acres of good timber. But before he could move in and start cutting, some careless person started a fire that burned the entire area. You can be sure that rigid fire control is the first essential in his present scheme of sustained-yield timber management.

Hughes gets real satisfaction out of showing his fire damage plot. Down on his knees in the unburned half-acre he exhibts for visitors tiny pine seedlings, some of them only a year old. Then he takes them over the burned half-acre to look for tiny seedlings. They are not there. Abundant on the unburned plot and almost entirely lacking on the burned plot, these young trees are his only hope for continuous operation. In threescore years or so they will be sawlog size and ripe for harvest. It doesn't bother him in the least that he might not be around to help cut them. He has two young sons—and a fresh crop of loggers and sawyers is growing up with the trees. Also, there will still be sportsmen eager to hunt and fish in green, healthy forests.

And yet, if you call Hughes an idealist—a public benefactor—he will deny it most energetically. Keeping fire out of the woods is strictly a matter of business with him. It just so happens that what's good for Ralph and his company is also good for the community and good for posterity. Any hint of altruism would be putting the cart before the horse.

So if you feel an urge to do something to boost forest conservation, the fire damage demonstration idea may provide an outlet. If you do set one up don't "hide your light under a bushel." Put up a sign—label it so everyone who sees it will know what you're trying to do.

AUTHORS

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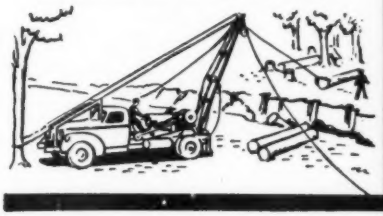

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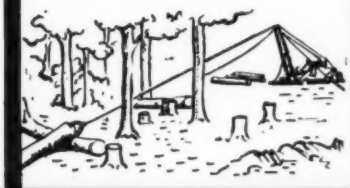

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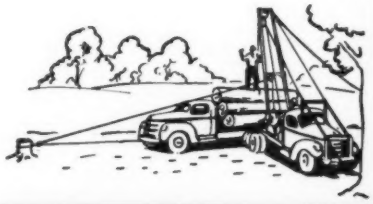

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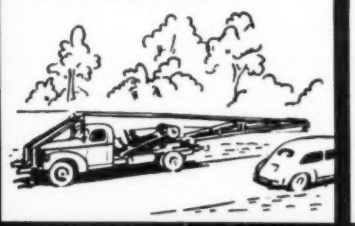

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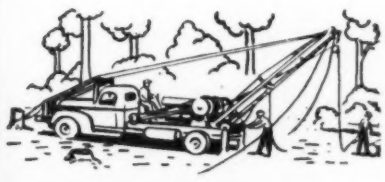

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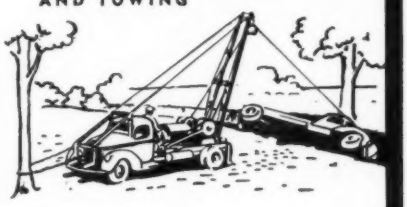

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